SERVICE MANUAL

FORTRESS-CALYPSO

3- & 4- WHEEL SCOOTER

handicare

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This manual

This manual contains the basic instructions for repairs and general maintenance of the Calypso electric scooter. Mechanics who do repairs on this scooter must be well trained and familiar with the repair methods and the maintenance of the Calypso electric scooter.
It is important to see to it that work is always done safely, particularly with respect to activities where the scooter must be lifted up.
We advise that you contact our service department before doing repair work on a scooter that has been involved in an accident.
The following specifications are important when ordering parts:

- Model
- Manufacture year
- Identification number
- Part number
- Name of the relevant part

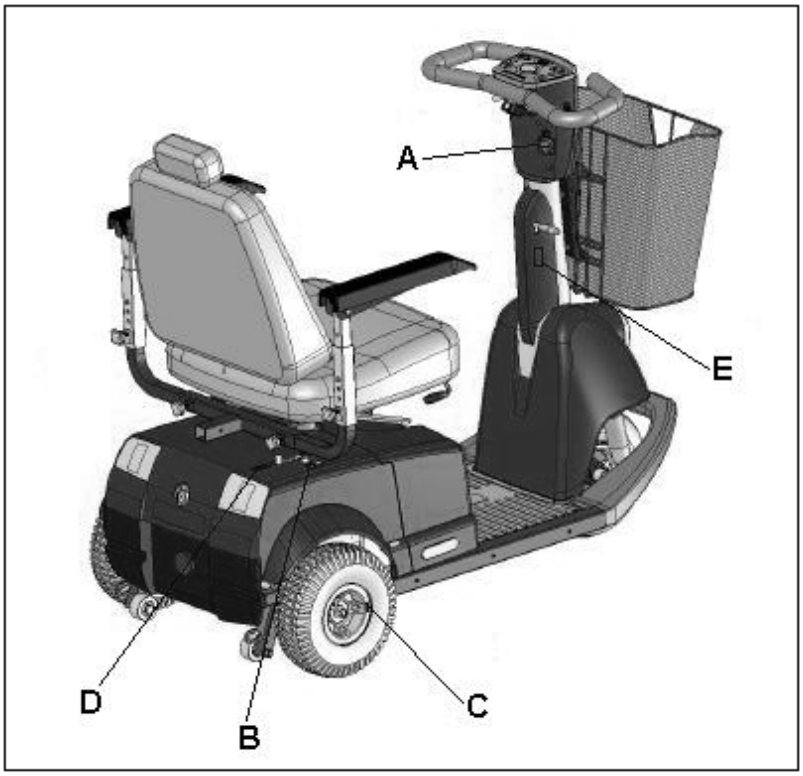
This information can be found on the identification plate. See 'Identification of the product'.

Available documentation

The following technical documentation is available / required to service this scooter:

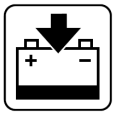
- User manual
- Service manual

Productlabels



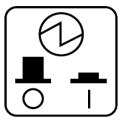
The following stickers and labels can be found on the product:

A. Charging point
B. Circuit breaker
C. Tyre pressure
D. Neutral position
E. Adjustment of steering column angle



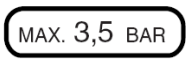
A. Charging point

See the chapter on ‘Charging the batteries’, section 5.1, for how to charge the batteries.



B. Circuit breaker

The scooter is equipped with a fuse which interrupts the electric current on overload. See ‘Automatic circuit breaker’, section 7.2.

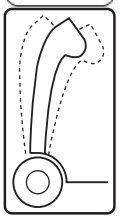


C. Tyre pressure

See the ‘product specifications’ for the correct tyre pressure.

D. Neutral position – Free wheel facility

1. Lever fully forward (“BRAKE applied”):
   When the motor drive is engaged the scooter can be driven electrically and the brakes are also applied when the scooter is switched off.
1. When the lever is in the lowest position
   the motor drive is disengaged. The scooter can then be pushed manually.



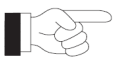
E. Adjusting the steering column angle

The steering column can be adjusted to the position you find most comfortable when driving. See ‘Changing the position of the steering column’, section 4.1.6.

Symbols used in this manual:

CAUTION

Operations or manoeuvres which are not carried out correctly may result in damage to the product or the environment, or in user injury.



ATTENTION!

Suggestions for making specific operations or manoeuvres easier to carry out.

First consult the source(s) of information given.

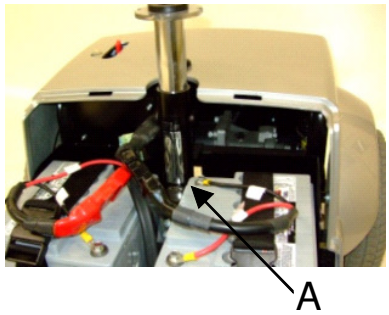
Disconnect the charging cable from the charging point on the scooter before carrying out any maintenance on the scooter.

Service and technical support

Your dealer should be contacted for information about specific adjustments, maintenance or repair and will be happy to help you.
When contacting your dealer, please ensure you have the following information to hand:

- Model
- Serial number

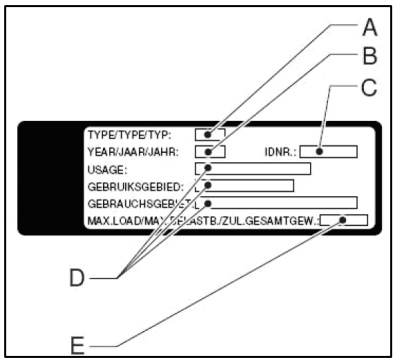
This information can be found on the information plate. See the illustration below.



Identification plate

Product information is recorded on plate (A). See: 'Identifying the product'.

Identifying the product



A. Model
B. Date of manufacture
C. Serial number / identification number
D. Usage: Indoor use, outdoor use or both
E. Maximum load in kg

Approvals

The product meets the following requirements:

- EN12184; 1999 Electrically powered wheelchairs and scooters, class B.
- EN12182; 1999 Technical aids for disabled persons.
- ISO7176-8 Requirements for static, impact and fatigue strengths.
- ISO7176-9 Climatic tests for electric wheelchairs and scooters.
- ISO7176-14 Requirements and test methods for power and control systems for electric wheelchairs.
- ISO7176-16 Requirements for resistance to ignition of upholstered parts.

The product has been EMC-approved (for electromagnetic compatibility) in accordance with EN12184 (1999).

CE declaration

CE

The product complies with the regulations of the Medical Devices Directive and therefore bears the CE mark.

Used scooters and the environment

If your scooter is no longer required or needs to be replaced, it will usually be possible to arrange for your dealer to take it back. If this should not be possible, consult with your local authority to find out if the scooter can be recycled or if the materials used in it can be processed in an environmentally friendly way.

Various plastics and metals were used in the manufacture of the scooter. The scooter also contains electronic components which should be disposed of accordingly. The batteries constitute chemical waste.

Warranty

Definitions of terms used in this warranty:
- Consumable part: Part that is subjected to natural wear and tear or natural contamination during normal operation within the lifetime of the product (section 9 of Handicare's general terms and conditions of sale);
- Client: Those who purchase the product directly from Handicare;
- Corrective action: Repair, replace or refund of the product;
- Dealer: Those who re-sell the product to the User;
- Defect: Any circumstance due to which the product is not sound or fit to use, caused by a lack of quality of the material used to manufacture the product as well as the quality of the manufacturing process;
- Option: An accessory delivered by Handicare to extend the standard product model;
- Product: Product that is delivered according to brochure or contract (e.g. wheelchair, scooter, battery-charger etc.);
- Part: Part of product that can be exchanged or replaced. This can be an option, accessory, service part or consumable part;
- Returns: Product or part that needs to be returned;
- RMA-process: Process to return goods, contact Handicare's Customer Service;
- Service part: Part that is durable and may be subjected to natural wear and tear or natural contamination during normal operation within the lifetime of the product.;
- User: Those who use the product;
- Warranty: The rights and obligations set forth in this document;
- Warranty period: The period of time during which the warranty is valid;
- Warranty provider: Handicare B.V., Vossenbeemd 104, 5705 CL Helmond, The Netherlands.

Notwithstanding the rights and obligations of Handicare, Client and User set forth in Handicare's general terms and conditions of sale, the rights of the Client and/or User towards Handicare in case of defects are limited to the provisions set forth in this warranty. For the duration of the warranty period Handicare guarantees that the product is without defects.
In case of any defects the User is required –within two weeks after discovery of the defect- to contact the dealer. He has to complete a return form and return the product or part via the RMA-process. Handicare will, at its sole discretion, take the corrective action it seems fit under the given circumstances within a reasonable period of time (depends on nature of claim) from receipt of the completed return form. The warranty period will not be extended after a corrective action.

Warranty period table

Power wheelchairs / scooters

Description	Warranty period	Examples include, but are not limited to the parts mentioned below
Frame	2 years	Weldment/frame
Drive system	1 year	Transaxle, motor, motor brake
Electronics	1 year	Controller, controlling mechanism, wiring harness, electronic components
Service Parts	New: 1 year after invoice Repaired: 90 days after invoice	Brakes
Consumable parts	40 days after invoice	Wheels, push handles etc.
Options/Accessories	2 years	Mirror, mudguards etc. Not being service part or consumable part.

Handicare will only accept shipment costs and corrective costs related to warranty on equipment during the warranty period.

This warranty will void in case of:
- The product and/or its parts being modified or items having been added by others than Handicare;
- Changes in cosmetic appearance by use;
- Failure to observe the instructions for use and maintenance, use other than normal use, wear and tear, negligence, collateral damage by neglect of earlier symptoms, overloading, third-party accidents, non-original parts used and defects not caused by the product;
- Circumstances beyond our control (flood, fire, etc.).

This warranty does not cover:
- Tyres and inner tubes
- Batteries (covered by the battery manufacturer's warranty).

Clients and/or Users have legal (statutory) rights under applicable national laws relating to the sale of consumer products. This warranty does not affect statutory rights you may have nor those rights that cannot be excluded or limited, nor rights against the entity from whom the product was purchased. Clients may assert any rights they have at their sole discretion..

Use for intended purposes [(1)]

The Fortress Calypso scooter was developed for:
- The transportation of people weighing up to 125 kg
- Use on pavements, footpaths and cycle paths
- Use in and around the house

The dealer must give you clear instructions before you start operating the product independently.
Your first test drives of the Fortress Calypso are best carried out under the supervision of an experienced dealer.
The Fortress Calypso scooter is not classified as a road vehicle and therefore may not be used on the road (crossing over the road being the only exception).
The Fortress Calypso has a maximum speed of 10 km/h (6 mph).

ENSURE THAT YOU ARE FULLY ACQUAINTED WITH THE CONTENTS OF THIS MANUAL BEFORE STARTING TO DRIVE THE FORTRESS CALYPSO.

If you use the scooter in a dangerous fashion, or use the scooter for purposes other than those intended, Handicare will accept no liability for any personal injury or damage to property caused by such misuse.

[(1)] Intended use, as specified by EN 292-1, means the use for which the technical product is suitable according to the manufacturer's declaration, including the manufacturer's instructions in the sales brochure. In the event of doubt, use is taken to mean the use as construed from the design, construction and function of a product. The instructions contained in the user manual must also be followed within the scope of intended use.

1 General safety rules and regulations

Handicare accepts no liability for loss or injury caused by not following the safety rules and regulations fully, or otherwise for loss or injury as a result of negligence during use or when cleaning the scooter and any accessories. Supplementary safety regulations may apply depending on the specific circumstances for operation or on the accessories used. Please contact your dealer immediately if you should ascertain any potential hazards when using the product.

The user of the scooter (see 'Intended use') is at all times responsible for following local safety rules and guidelines.

1.1 Labels and instructions on the scooter

The markings, symbols and instructions on the scooter constitute a part of the safety guidelines for the scooter. For this reason they may never be covered or removed and must be present and clearly legible for the entire period of time the scooter is in existence.

Illegible or damaged labels, symbols and instructions must be replaced or repaired immediately. Contact your dealer in such cases.

1.2 Technical specifications

No changes may be made to the technical specifications.

1.3 Adaptations

Adaptations to components of this product are not permitted.

1.4 Safety

It is of great importance that attention be paid to the following safety regulations for the prevention of accidents and undesirable situations.

Take extra care when driving on slopes:

- **Never remove safety devices, such as the anti-tip wheels.**
- **Never drive the Fortress Calypso up slopes with a gradient greater than that specified in section 5.4.3 of this manual.**
- **Always drive up slopes slowly and take extra care.**
- **Never descend a slope at full speed.**
- **Do not drive down slopes covered with loose gravel or with a sandy surface, as one of the back wheels may slip.**
- **Do not turn on slopes.**
- **Never take corners at full speed. Reduce speed before taking a corner.**
- **When driving up a slope, adopt a position which promotes stability, as described in section 5.4.3 of this manual.**

- **Ensure that clothing does not trail as this can become entangled in the wheels.**
- **Ensure that your fingers do not become trapped in the mechanism for adjusting the position of the steering column.**

You must adjust your driving to the prevailing conditions:

- **Drive carefully on roads which have become slippery due to rain, black ice or snow!**
- **Reduce speed in busy surroundings.**
- **Do not use the scooter on unsurfaced roads.**
- **Ensure that the Fortress Calypso A does not come into contact with salt water. Salt water is corrosive and can damage the scooter.**
- **Ensure that the Fortress Calypso does not come into contact with sand. Sand can find its way into the moving parts of the scooter, resulting in these parts wearing out unnecessarily quickly.**
- **Never drive the scooter while under the influence of drugs, alcohol or prescription medications which could affect your driving ability.**
- **Your eyesight must be adequate for you to drive the scooter safely.**

- **If visibility is not ideal, then it is obligatory for the lights to be turned on. The scooter is equipped with brake lights which illuminate on braking.**
- **Use the indicator lights only to indicate a change in driving direction.**
- **Only use the horn for warning pedestrians or other road users of possibly hazardous situations.**

- **Never place metal components on top of the batteries. Doing so could cause a short circuit, leading to damage.**
- **Do not transport any passengers on the scooter. The scooter has been specifically designed to transport you alone.**
- **Do not drive the scooter with the seat backrest angled too far to the rear. This can affect weight distribution and the stability to the rear of the scooter, in particular when driving up slopes or over obstacles.**
- **Ensure that your scooter does not transport a greater load than fits in the basket. Never hang anything on the tiller.**

- **Never use the scooter for pulling a trailer. The scooter has not been designed for such use and doing so can cause serious damage to your scooter.**
- **Do not stand on the platform in order to reach up to objects.**
- **Do not position your feet too close to the front wheel and fork when driving. Always keep your feet on the rubber mat and not up against the front tiller cover.**

The scooter is electronically driven. Specific parameters have been factory-set. These settings have been made in order to ensure that use of the Fortress Calypso is comfortable and efficient and they can not be changed.

The standard version of your scooter has been tested in accordance with the most stringent requirements for electromagnetic interference.
<u>If you use a mobile telephone near to a specially adapted scooter, it is advisable to switch the scooter off first.</u>

Your scooter can affect electromagnetic fields, such as alarm systems. If the scooter's electronics are not well shielded, sensitive electrical devices, such as shop alarm systems and garage door openers, can be affected. The scooter has been tested for such interference. Please report any problems of this nature to your dealer immediately.

- **Beware of ultraviolet light. Ultraviolet light can cause premature wear of materials such as rubber, plastic and enamel.**
- **Pay attention to objects sticking out from the scooter. These can cause damage to your surroundings or to the scooter itself.**
- **Keep the scooter away from open flames.**
- **Avoid extreme weather conditions or extremely wet conditions. Maintain and store the scooter in a clean and dry state.**

2 Adjustment options

There are a number of adjustments which can be made to the Fortress Calypso in order to improve its seating and driving comfort levels.

Some adjustments are permanent adjustments made by the dealer using tools.

Other adjustments can be made by the user without the use of tools.

Adjustments can be made to the following by your dealer:
- Seat height
- Rear suspension

Adjustments can be made to the following by the user:
- Seat depth
- Backrest angle
- Armrest width
- Armrest height
- Headrest
- Steering column

2.1 Adjusting the seat

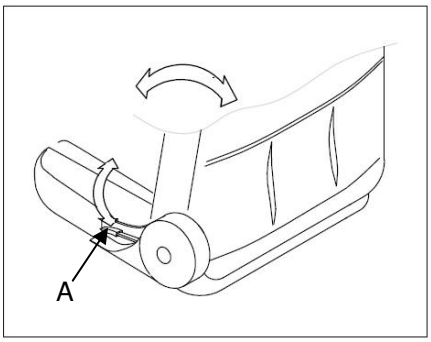
2.1.1 Adjusting the seat height

The entire seat can be adjusted in height in order to obtain the optimal seating position. This adjustment is carried out by the dealer.

2.1.2 Adjusting the seat depth (sliding system)

*(*seat may vary from the illustration*)*
The seat depth can be adjusted as follows:
- Lift and hold handle (A).
- Slide the seat forwards or backwards.
- Release the handle once the seat is in the required position. Now slide the seat slightly forwards or backwards so that it locks into place.
- The seat depth has now been adjusted.

2.1.3 Adjusting the backrest



The backrest angle can be adjusted as follows:
- Lift handle (A) whilst sitting on the seat.
  The backrest now automatically moves forwards.
- Push the backrest to the rear by leaning against it until it is in the position you find the most comfortable.
- Once adjusted, release the handle. The backrest remains in the position you selected.

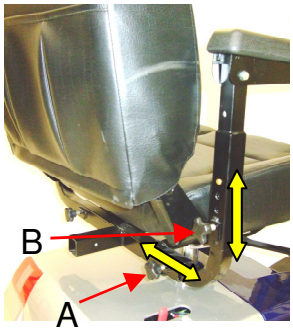
Caution: Exercise caution when using the handle when no one is sitting on the seat. The backrest is equipped with a spring mechanism which causes it to be driven quickly forwards with some force.

The backrest can be adjusted to provide good back support while driving.

If the backrest is adjusted to an angle too far to the rear, the driver's seating position is then less stable, particularly on slopes.

It is therefore important never to drive your scooter if the backrest is inclined too far back.

2.1.4 Adjusting the armrest



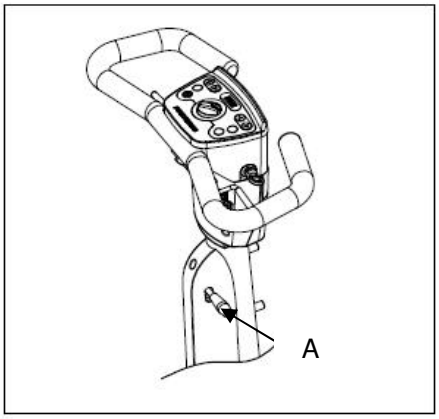
The armrests can be adjusted as follows:
- Rotary knobs (A) for adjusting the distance between the armrests are located at the back of the seat.
- Turn the knob in an anti-clockwise direction to loosen the armrest.
- Once you have adjusted the distance between the armrests, tighten the rotary knobs by turning in a clockwise direction. Then check to see whether the armrests are firmly in place.
- The rotary knobs (B) for adjusting the height of the armrests are located on the rods supporting the armrests.
- Turn the knob in an anti-clockwise direction to loosen the armrest.
- Press the nipple and slide the armrest upwards or downwards into one of the three positions.
- Once you have adjusted the height, tighten the rotary knobs by turning in a clockwise direction. Then check to see whether the armrests are firmly in place.

2.1.5 Adjusting the headrest

The headrest can be adjusted to various heights.

The headrest height is adjusted as follows:
- Press the plastic button at the point where the headrest is attached to the seat, at the same time moving the headrest to the required height. The headrest can also be removed if required.
- Release the button and move the headrest slightly so that it locks into one of the positions.

2.2 Adjusting the steering column



The steering column can be adjusted to make driving more comfortable and to make it easier for you to mount and dismount from the scooter.

The steering column is adjusted as follows:
- Using one hand, pull handle (A) downwards while pulling the steering column towards you with the other hand until it is in the most comfortable position.
- Release the handle. Then release the steering column.

If you release the steering column while still pulling the handle down, the pneumatic spring will cause the steering column to jump into the most forward position automatically.

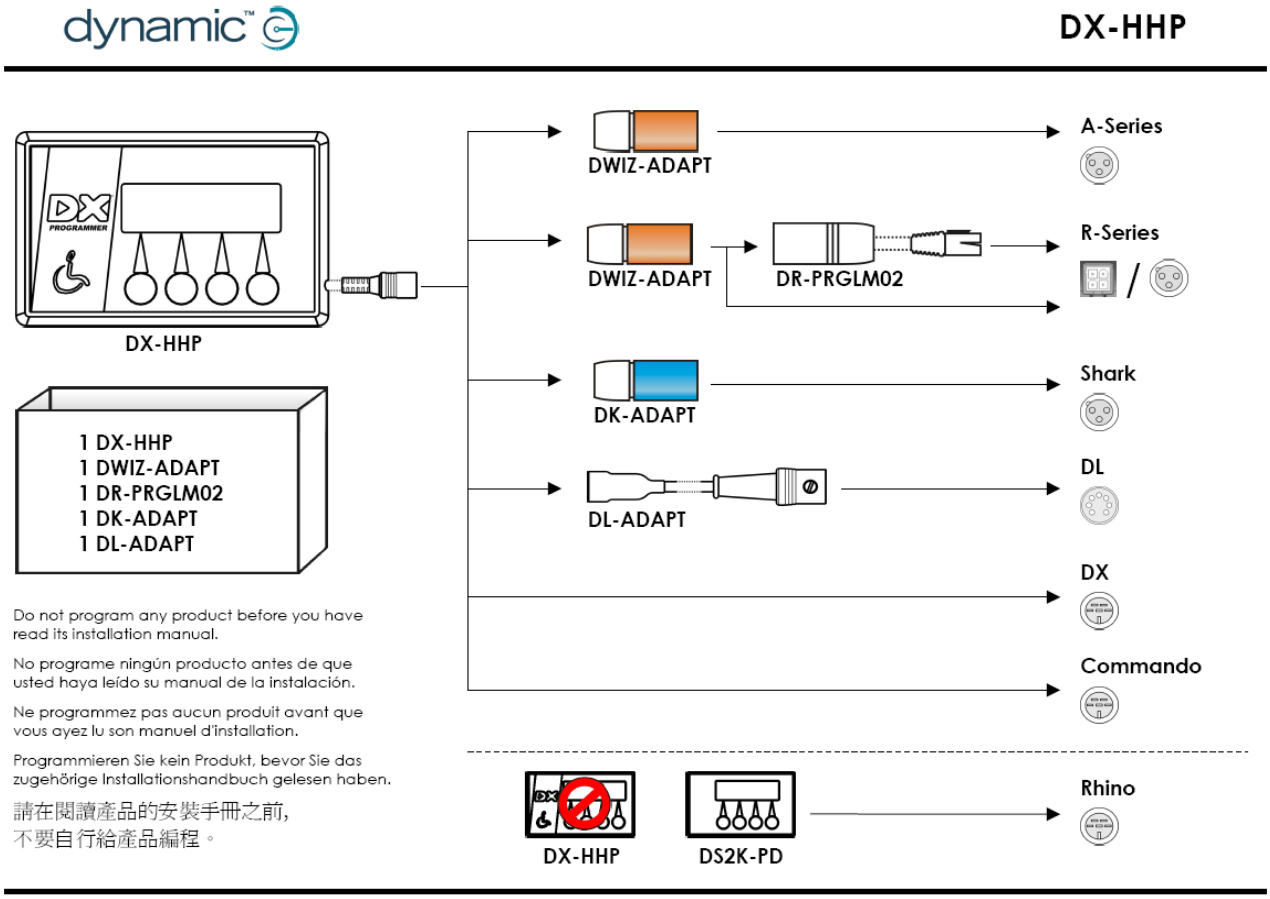
Exercise caution while adjusting the steering column and ensure that your fingers do not become trapped.

2.3 Adjusting the rear suspension

The rear suspension of the scooter can be adjusted to provide optimal comfort. This adjustment is carried out by the dealer.

3 Programmer

The Fortress Calypso can be programmed with both the DX-HHP Hand-Held-Programmer and the Wizard. In both cases, use the orange DWIZ adaptor and connect to the charger socket of the scooter.



For the standard settings of the programmer, see the R series DR-50 and DR-90 installation manual that can be downloaded on www.dynamiccontrols.com.

The driving programs for Handicare products can be found on our FTP server.
Log on to the FTP server:

- Open internet explorer
- Go to ftp://mobilityftp.handicare.com
- Enter user name and password
  User name: dealer@mobilityftp.handicare.com
  Password: dealer
- You will be logged on
- Select your wheelchair and the appropriate controller
- Click the file to download

If you wish to order parts for your programmer, please contact Handicare.
DWIZ-ADAPT 1009567

The specific and optimised Fortress Calypso settings are summarized in the table below.

User Personalisation	10km/h or 6mph	8km/h or 5mph
Swap Throttle Direction	No	No
Enable Beeper	Yes	Yes
Flash Code Beeper	No	No
Sleep Beeper	Yes	Yes
Reversing Beeper*	Yes	Yes
Beeper On Time (ms)	300	300
Beeper Off Time (ms)	700	700

*These settings have no influence, are set via dip-switches on Tiller PCB (see Chapter 6.3)

Throttle Configuration	10km/h or 6mph	8km/h or 5mph
Throttle Type	Wig-wag	Wig-wag
Throttle Input	Single	Single
Throttle Neutral Offset (V)	0.00	0.00
Throttle Full Scale Deflectio	70	70
Throttle Response (%)	60	60
Throttle Dead-band (%)	25	25

Motor Management	10km/h or 6mph	8km/h or 5mph
Motor Reverse	No	No
Load Compensation (mOhm)	80	80
Current Limit (A)	50	50
Boost Current (A)	8	8
Boost Time (s)	8.0	8.0

Transaxle power	450 watt for 2 hrs Load of ±20A at 24V

Park Brake Management	10km/h or 6mph	8km/h or 5mph
Park Brake Neutral Delay (ms)	500.0	500.0
Park Brake Release Delay (ms)	0.0	0.0

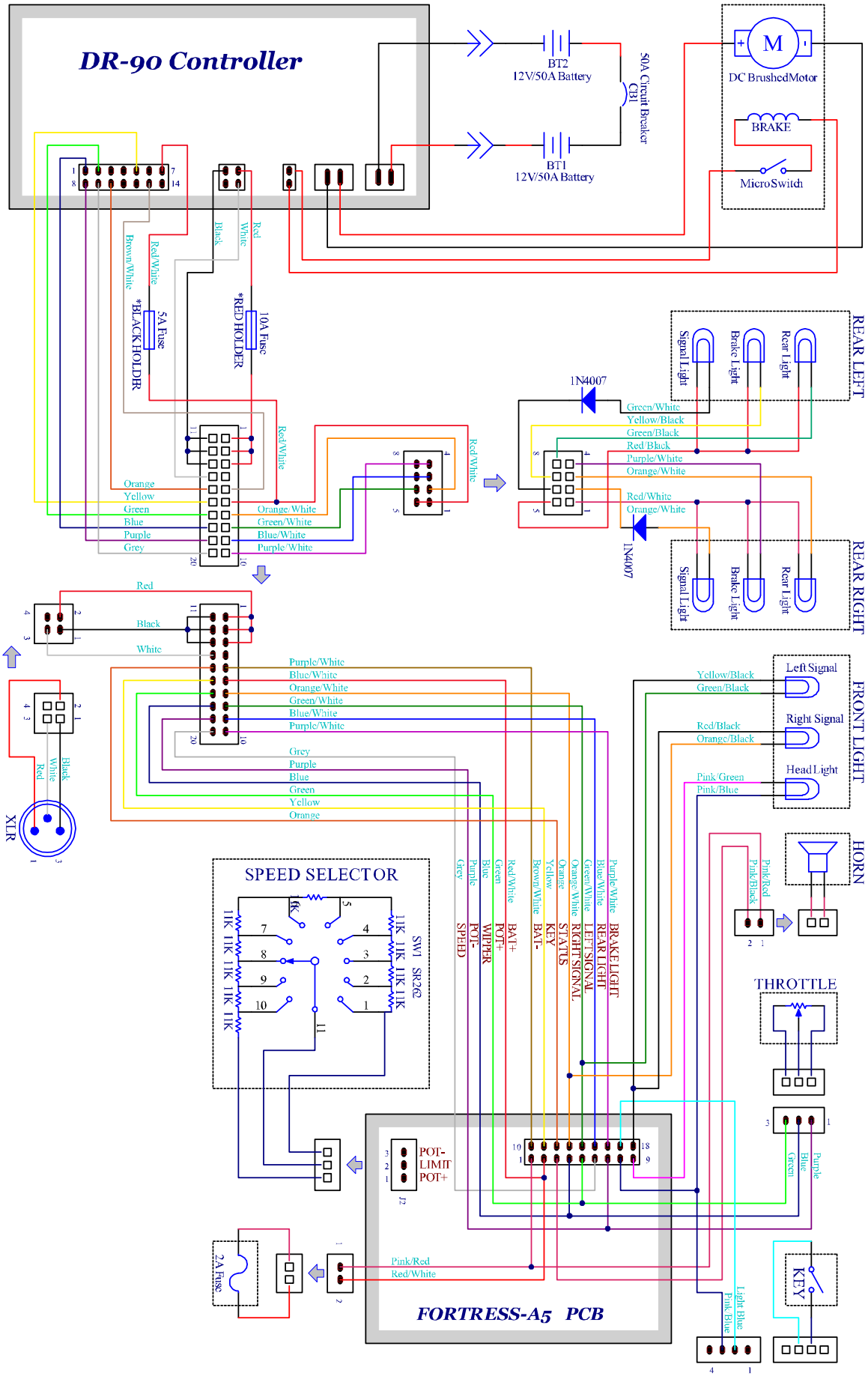
Battery Management	10km/h or 6mph	8km/h or 5mph
Battery Resistance (mOhm)	15	15
Fuel Gauge High Warning (V)	29.0	29.0
Fuel Gauge Low Warning (V)	23.4	23.4

System Options	10km/h or 6mph	8km/h or 5mph
Service Scheduler	No	No
Service Period (hours)	5000	5000

Input Pin	Function	Active	Slows to	Latches
Pin 4 Function	None	Low	100	No
Pin 6 Function	None	Low	100	No
Pin 12 Function	None	Low	100	No
Pin 14 Function	None	Low	100	No
Prog/Inh Pin Function	Charger Inhi	Low	100	No

Multi-function Outputs Configuration	
Flash Code Type	Scooter
Pin 3 Function	Beeper
Pin 10 Function	Status High
Pin 11 Function	Status

4 Electrical diagram



5 Technical specifications

Handicare B.V.:	Vossenbeemd 104 5705 CL, Helmond The Netherlands

5.1 Fortress Calypso product specifications

Model	Fortress Calypso 3 wheels (3W) Fortress Calypso 4 wheels (4W)
Maximum user weight	125 kg

Description		3W	4W
Total length	mm (inches)	1207 (47.5)	1214 (47.8)
Total width	mm (inches)	622 (24.5)	622 (24.5)
Minimum height*	mm (inches)	710 (28)	710 (28)
Total weight excluding batteries:	kg (pounds)	70 (154.3)	75 (165.3)
Total weight including batteries:	kg (pounds)	100 (220.5)	105 (231.5)
Weight of heaviest component	kg (pounds)	27 (59.5)	32 (70.5)
Static stability in the downward direction	°	15 (27%)	15 (27%)
Static stability in the upward direction	°	15 (27%)	15 (27%)
Lateral static stability	°	15 (27%)	15 (27%)
Distance range (ISO 7176-4)**	km (miles)	40 (24.9)	40 (24.9)
Dynamic stability (max. safe slope)	°	9 (16%)	9 (16%)
Maximum speed forwards	km/h (mph)	10 (6)	10 (6)
Back angle, Captain Seat	°	0-103-126	0-103-126
Seat depth, Captain Seat	mm (inches)	445 (17.5)	445 (17.5)
Seat width, Captain Seat	mm (inches)	457 (18)	457 (18)
Back height (excl. headrest), Captain Seat	mm (inches)	406 (16)	406 (16)
Seat height (to platform), Captain Seat	mm (inches)	432-490 (17-19.3)	432-490 (17-19.3)
Armrest height, Captain Seat	mm (inches)	229-273 (9-10.8)	229-273 (9-10.8)
Distance between armrests, Captain Seat	mm (inches)	457-610 (18-24)	457-610 (18-24)
Back angle, Master Seat	°	85-180	85-180
Seat depth, Master Seat	mm (inches)	430 (16.9)	430 (16.9)
Seat width, Master Seat	mm (inches)	500 (19.7)	500 (19.7)
Back height (excl. headrest), Master Seat	mm (inches)	550 (21.7)	550 (21.7)
Seat height (to platform), Master Seat	mm (inches)	432-510 (17-20.1)	432-510 (17-20.1)
Armrest height, Master Seat	mm (inches)	150-340 (5.9-13.4)	150-340 (5.9-13.4)
Distance between armrests, Master Seat	mm (inches)	500 (19.7)	500 (19.7)

Description		3W	4W
Turning radius (ISO 7176-5)	mm (inches)	1170 (46.1)	1600 (63)
Obstacle height (max. user weight)	mm (inches)	76 (3)	76 (3)
Ground clearance (max. user weight)	mm (inches)	101 (4)	101 (4)

Test data	
Test weight	125 kg

Operating force	
Drive lever operation	< 60 N
Resetting the automatic fuse (circuit breaker)	< 60 N
Electronic switches	< 15 N
Connecting the charger plug	< 60 N

Technical specifications for wheels		
Front wheel diameter (3W)	mm (inches)	260 x 85 (10.2 x 3.3)
Front wheel diameter (4W)	mm (inches)	260 x 85 (10.2 x 3.3)
Rear wheel diameter	mm (inches)	260 x 85 (10.2 x 3.3)
Tyre pressure 4W, front wheel	bar (psi)	3.5 (50)
Tyre pressure 4W, rear wheel	bar (psi)	3.5 (50)
Tyre pressure 3W, front wheel	bar (psi)	3.5 (50)
Tyre pressure 3W, rear wheel	bar (psi)	3.5 (50)

Batteries		3W	4W
Maximum dimensions of batteries (lxbxh)	mm (inches)	197x168x175 (7.8x6.6x6.9)	197x168x175 (7.8x6.6x6.9)
Max. battery capacity	Ah	60 (C20)	60 (C20)
Maximum permitted charging current	Ampère	8	8

* height of steering column, collapsed, excluding seat
** range dependent on user weight, condition of tyres, type of terrain, condition of battery and weather conditions.

6 Service instructions

6.1 Maintenance diagram

Every year or every 1000 km the following parts must be checked or replaced:
- Battery
- Lights
- Fuses
- Tyres
- Transaxle
- Carbon brushes

6.2 Maintenance instructions

- Check condition of the battery/leakage
- Check lights
- Check fuses
- Check tyres (wear and tension)
- Check Transaxle (free wheel lever, leakage etc.)
- Replace carbon brushes
- Lubrication (seat post and slider)

6.3 Instructions for repair

Make sure that the scooter is disconnected from the batteries before executing any repair work.

When replacing the transaxle, always reset the current free wheel lever.

(De-)activating of audible signal for indicator, alarm and reverse-beep.
These dip-switches are located at the botom-side of the Tiller PCB (004-2). First remove the shroud front assy (005-4) and the shroud rear assy (005-5) by unscrewing the 4x cross-head screws. Now you've acces to the 4 cross-head screws of the top console assy (004).

No signal

Only indicators and alarm signal (when contact is switched on)

Only reverse beep

All audible signals are activated (when contact is switched on)

7 Use of the parts list

This document is intended as a reference list for the ordering of parts for the Fortress Calypso 3W and 4W.

How to order:

To order parts, please specify:
- Serial number (See the identification plate)
- Group (to which the relevant part belongs)
- Article number
- Number of parts required
- Description (in the relevant language)

Comment:

- If a specific part does not have a position number, this means that it can not be ordered separately. The relevant part is then a component of the composite shown. Only the composite can be ordered, and will therefore need to be replaced in its entirety.
- The position numbers included in the tables refer to the relevant drawing.

Ordering address:

Please send you orders by post or fax to your dealer.

Technical technicians:

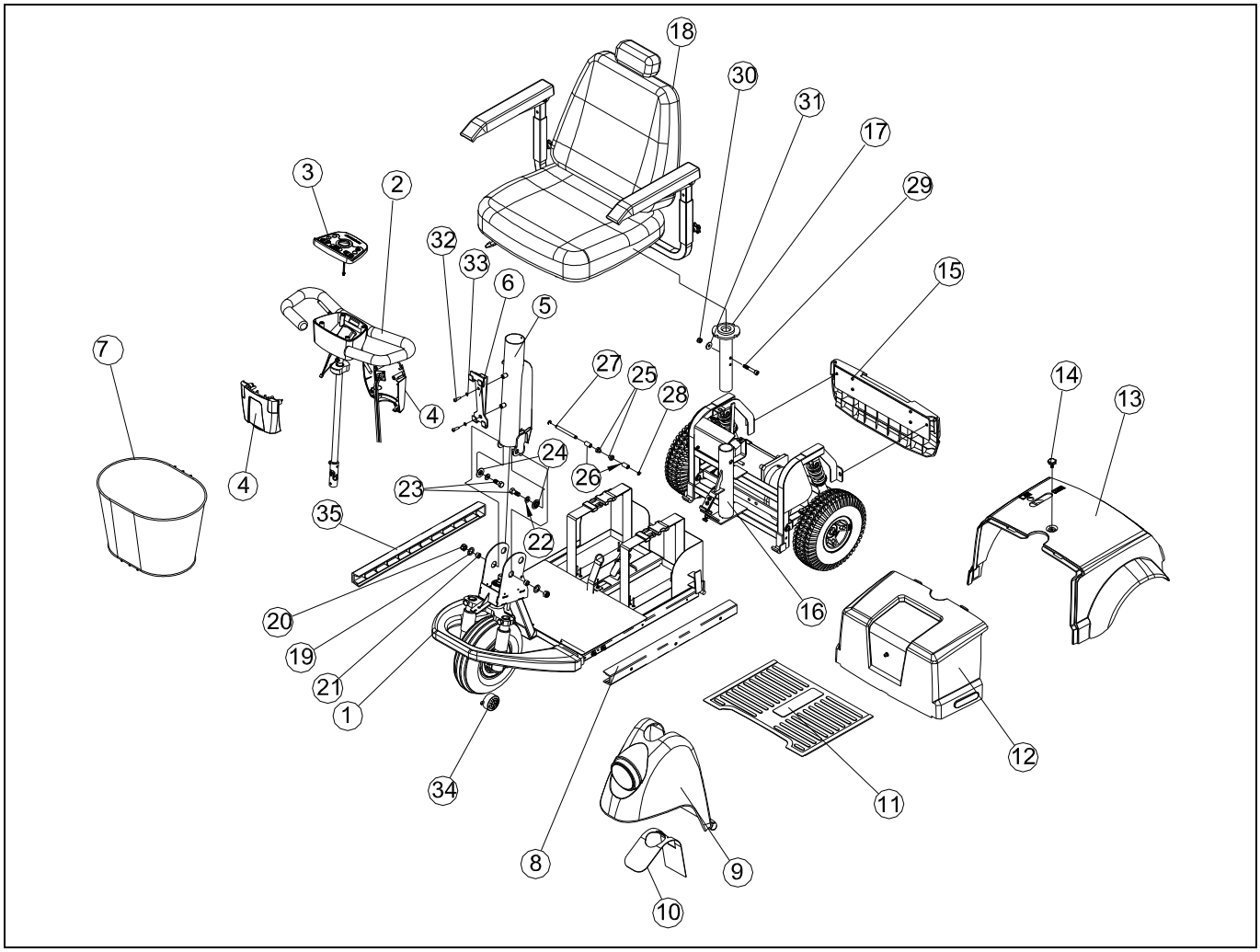
Repairs can only be executed by trained and authorized technicians. When executing their work they are at all times responsible for full compliance with local safety standards and directives. Temporary workers and personnel in training may only execute repair and replacement work under the supervision of an authorized service technician.

8 Parts list

In addition to the standard parts (shown in the following pages) the following parts/options are also available as spare parts and service parts:

- Mirror Left: 1009250
- Mirror Right: 1009251
- Cane/Crutch holder assy:1009552
- Rear basket assy: 1009549

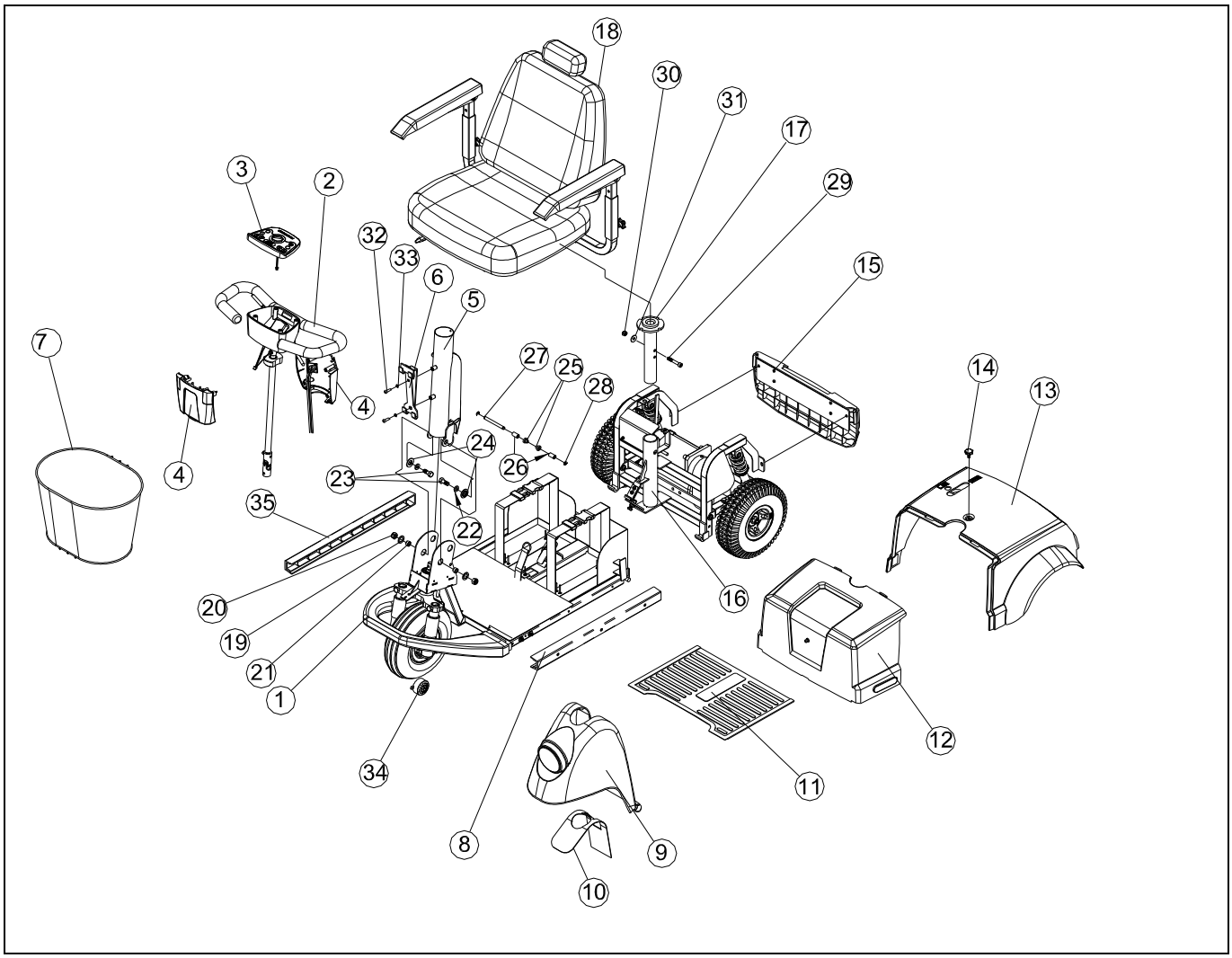
A: Overview 3W



Pos	Article number	Units	Description	
1	See list 010	1	Frame front assy 3W	
2	See list 006	1	Tiller assy	
3	See list 004	1	Top console assy	
4	See list 005	1	Bottom console assy	
5	See list 007	1	Tiller strut assy	
6	1009235	1	Bracket basket support	
7	C91001	1	Basket front	
8	1009237	1	Side board plastic left	
9	See list 012	1	Cover front 3W assy	
10	1009239	1	Tiller protect plastic	
11	1009240	1	Mat floor 3W	
12	See list 008	1	Cover battery assy	
13	See list 009	1	Cover motor assy	
14	1009242	1	Knop M5	
15	See list 003	1	Bumper rear assy	
16	See list 018	1	Rear frame assy	
17	1009243	1	Seat post Captain Seat	
	9001495	1	Seat post Master Seat	
18	1009244	1	Captain Seat	
	1002241	1	Master Seat	
19	No spare part	2	Flat washer	
20	No spare part	2	Lock nut M10xP1,25	
21	No spare part	2	Bushing 9,2mm	
22	No spare part	2	Flat washer	
23	No spare part	2	Hex bolt M10x25mm	

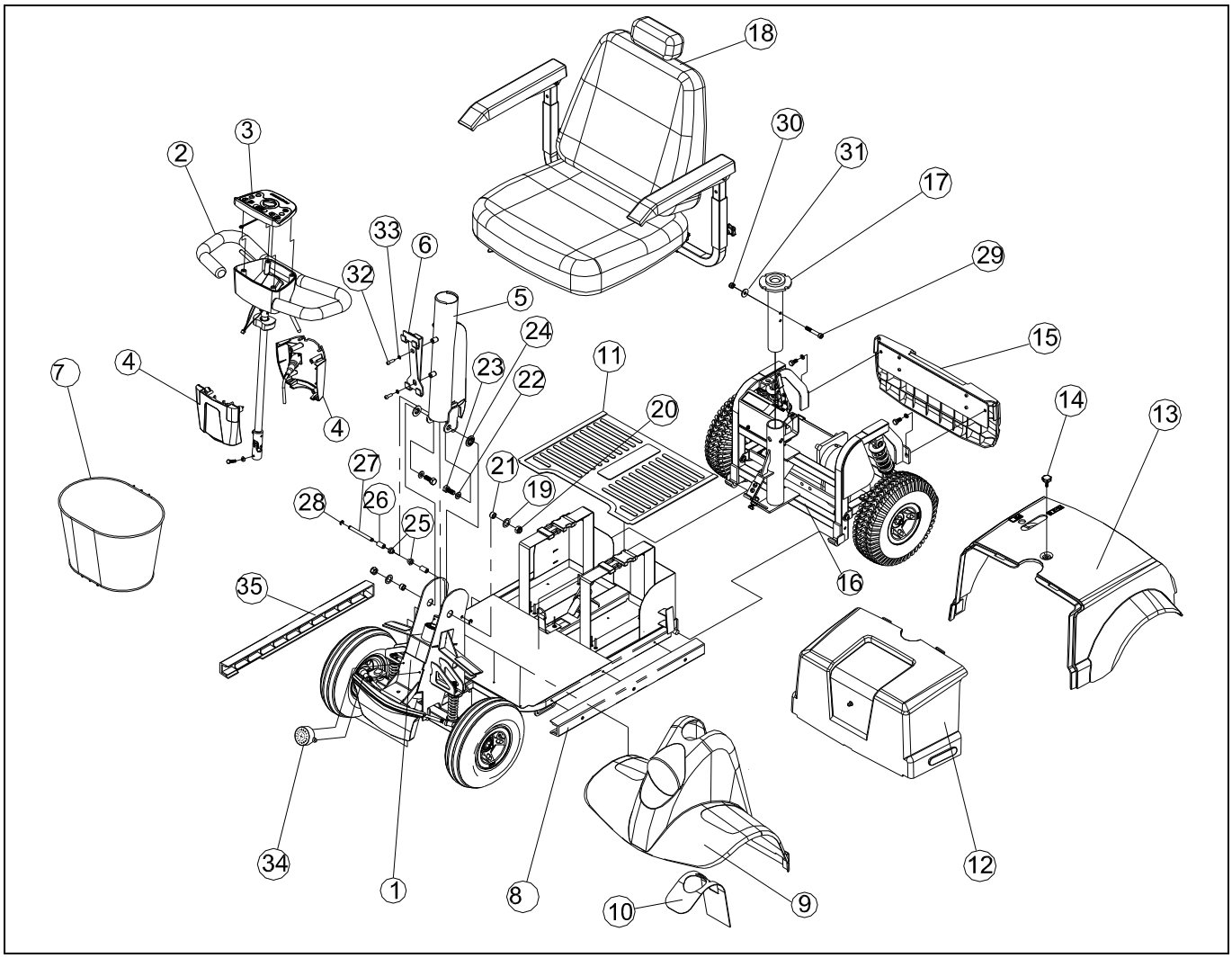
(see also next page)

A: Overview 3W (continued)



Pos	Article number	Units	Description	
24	1009245	2	Bushing shoulder 4,7mm	
25	1009246	2	Bushing shoulder 11mm	
26	1009247	2	Bushing 20,5mm	
27	1009248	1	Shaft 85mm	
28	No spare part	2	Retaining ring	
29	No spare part	1	Hex bolt M8x50mm	
30	No spare part	1	Lock nut M8xP1,25	
31	No spare part	1	Flat washer	
32	No spare part	2	Screw M6x20mm	
33	No spare part	2	Spring washer	
34	1009249	1	Horn	
35	1009238	1	Side board plastic right	

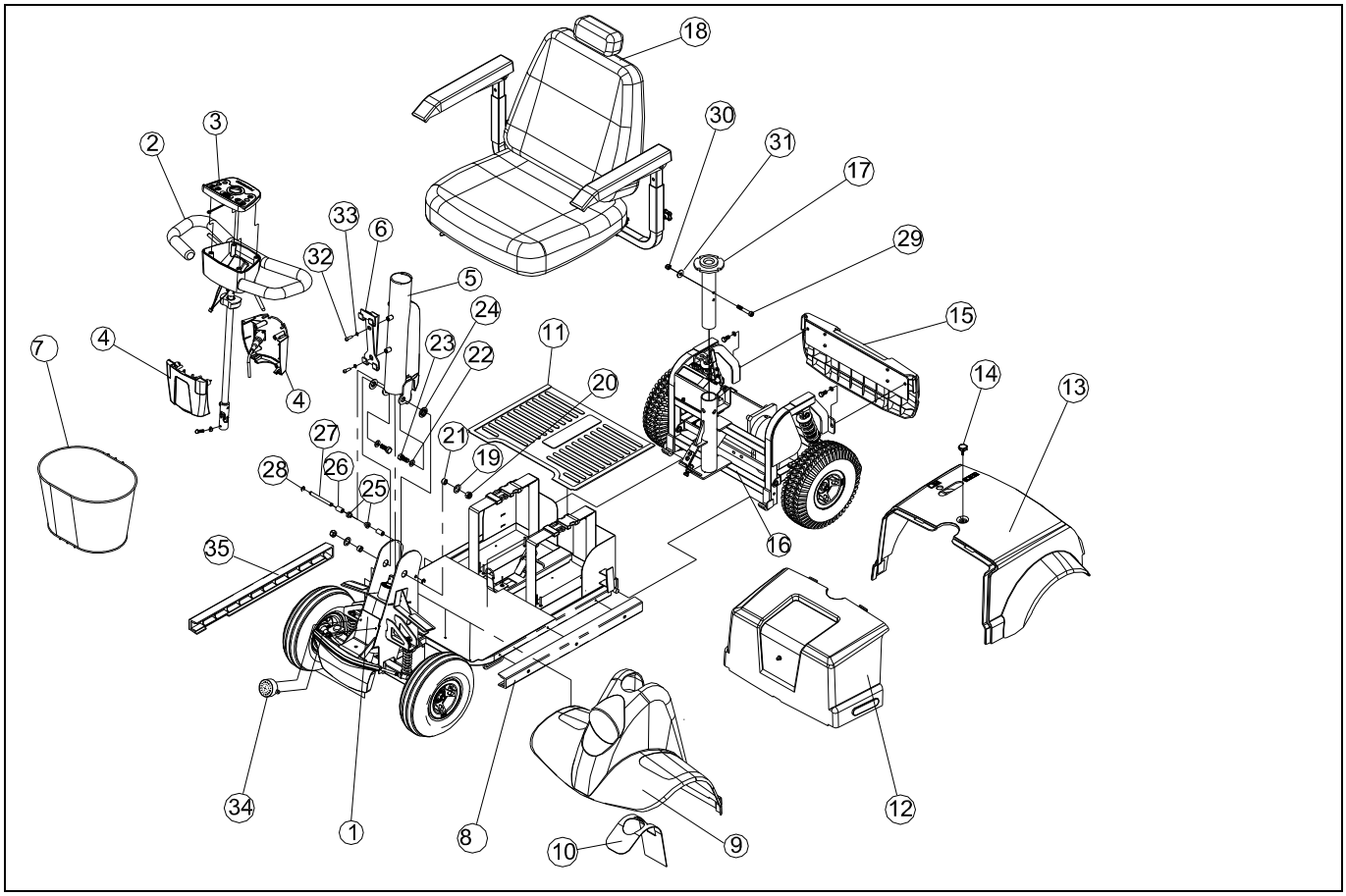
B: Overview 4W



Pos	Article number	Units	Description	
1	See list 013	1	Frame front assy 4W	
2	See list 006	1	Tiller assy	
3	See list 004	1	Top console assy	
4	See list 005	1	Bottom console assy	
5	See list 007	1	Tiller strut assy	
6	1009235	1	Bracket basket support	
7	C91001	1	Basket front	
8	1009237	1	Side board plastic left	
9	See list 016	1	Cover front 4W assy	
10	1009239	1	Tiller protect plastic	
11	1009241	1	Mat floor 4W	
12	See list 008	1	Cover battery assy	
13	See list 009	1	Cover motor assy	
14	1009242	1	Knop M5	
15	See list 003	1	Bumper rear assy	
16	See list 018	1	Rear frame assy	
17	1009243	1	Seat post Captain Seat	
	9001495	1	Seat post Master Seat	
18	1009244	1	Captain Seat	
	1002241	1	Master Seat	
19	No spare part	2	Flat washer	
20	No spare part	2	Lock nut M10xP1,25	
21	No spare part	2	Bushing 9,2mm	
22	No spare part	2	Flat washer	

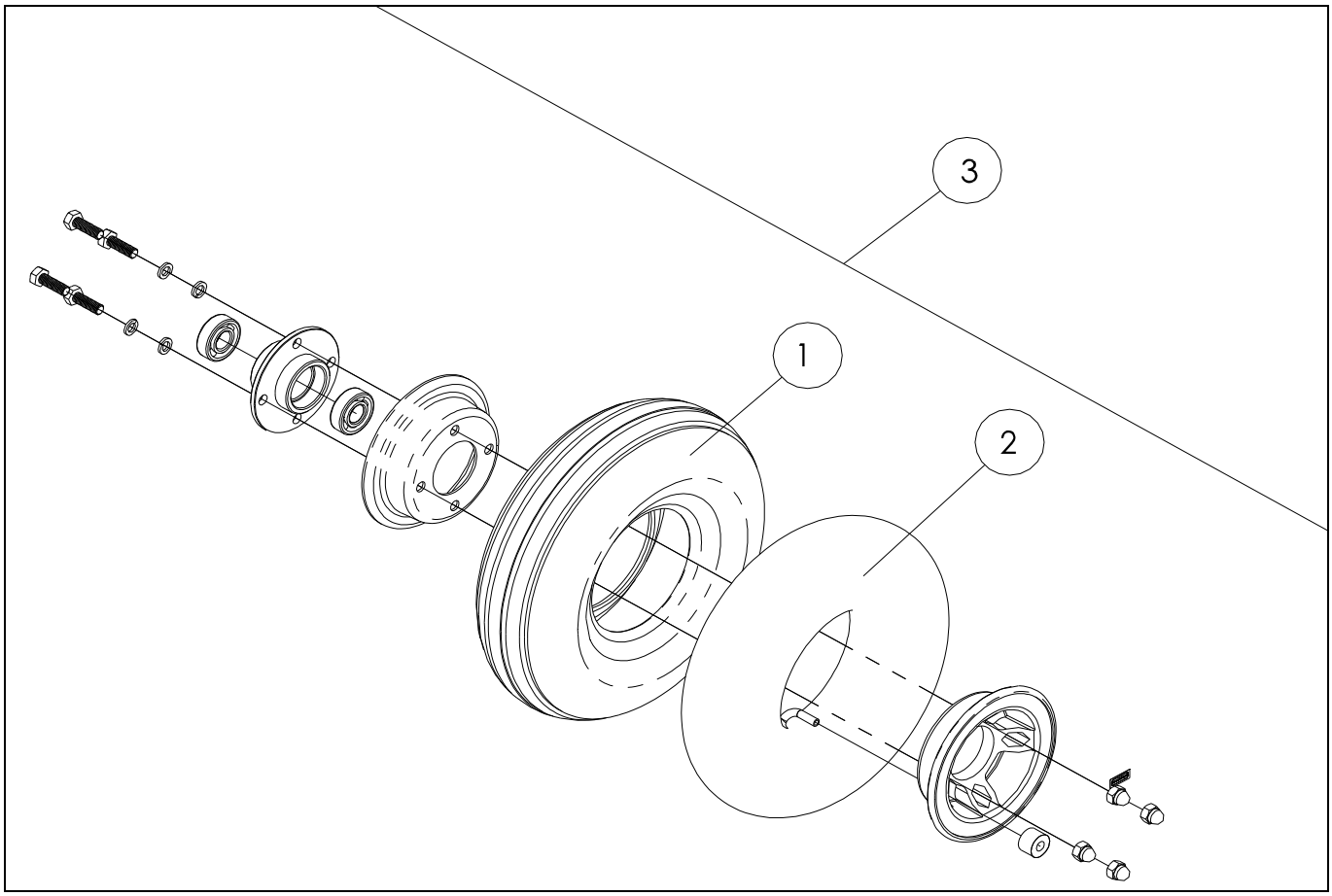
(see also next page)

B: Overview 4W (continued)



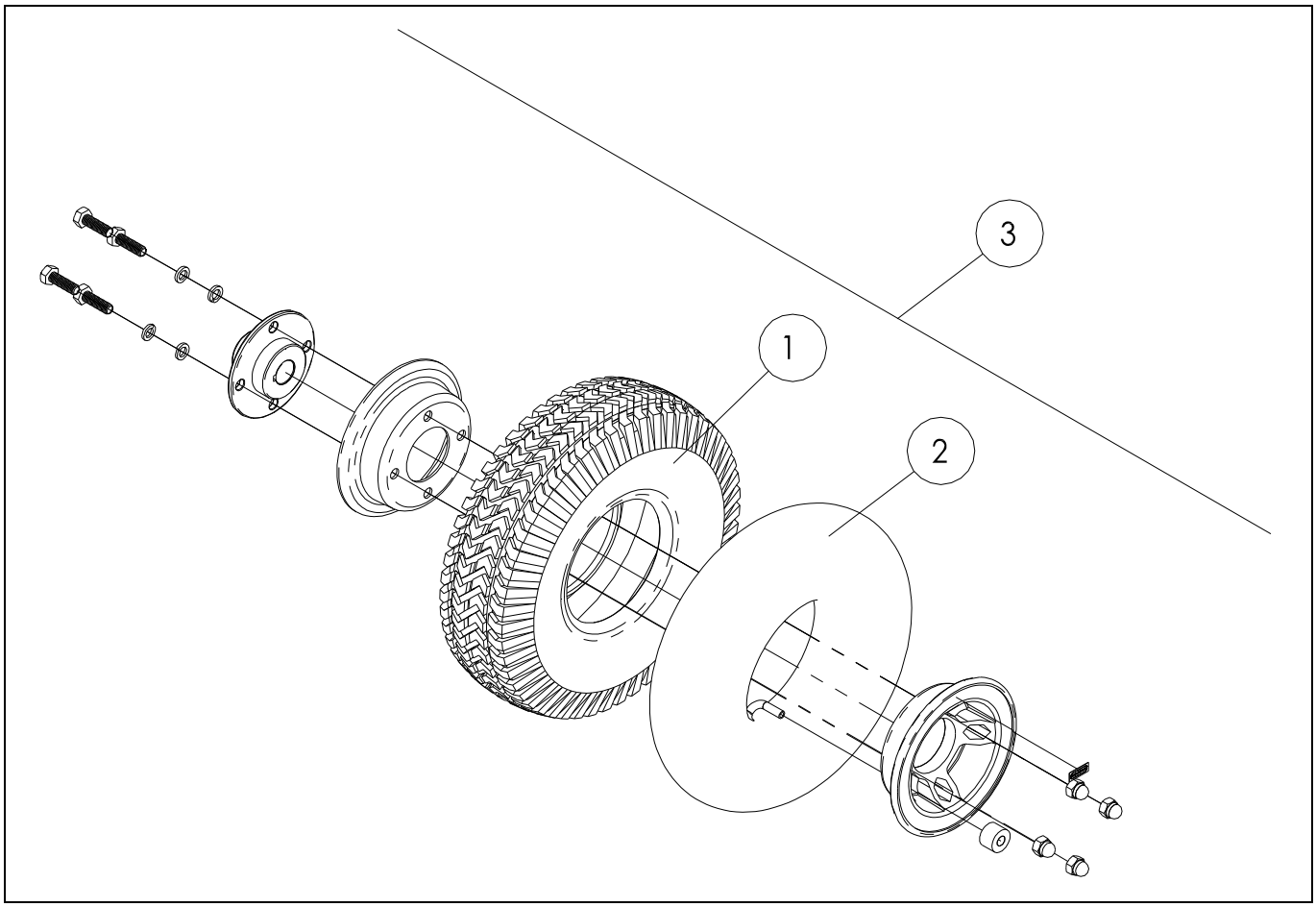
Pos	Article number	Units	Description	
23	No spare part	2	Hex bolt M10x25mm	
24	1009245	2	Bushing shoulder 4,7mm	
25	1009246	2	Bushing shoulder 11mm	
26	1009247	2	Bushing 20,5mm	
27	1009248	1	Shaft 85mm	
28	No spare part	2	Retaining ring	
29	No spare part	1	Hex bolt M8x50mm	
30	No spare part	1	Lock nut M8xP1,25	
31	No spare part	1	Flat washer	
32	No spare part	2	Screw M6x20mm	
33	No spare part	2	Spring washer	
34	1009249	1	Horn	
35	1009238	1	Side board plastic right	

001: Wheel front assy



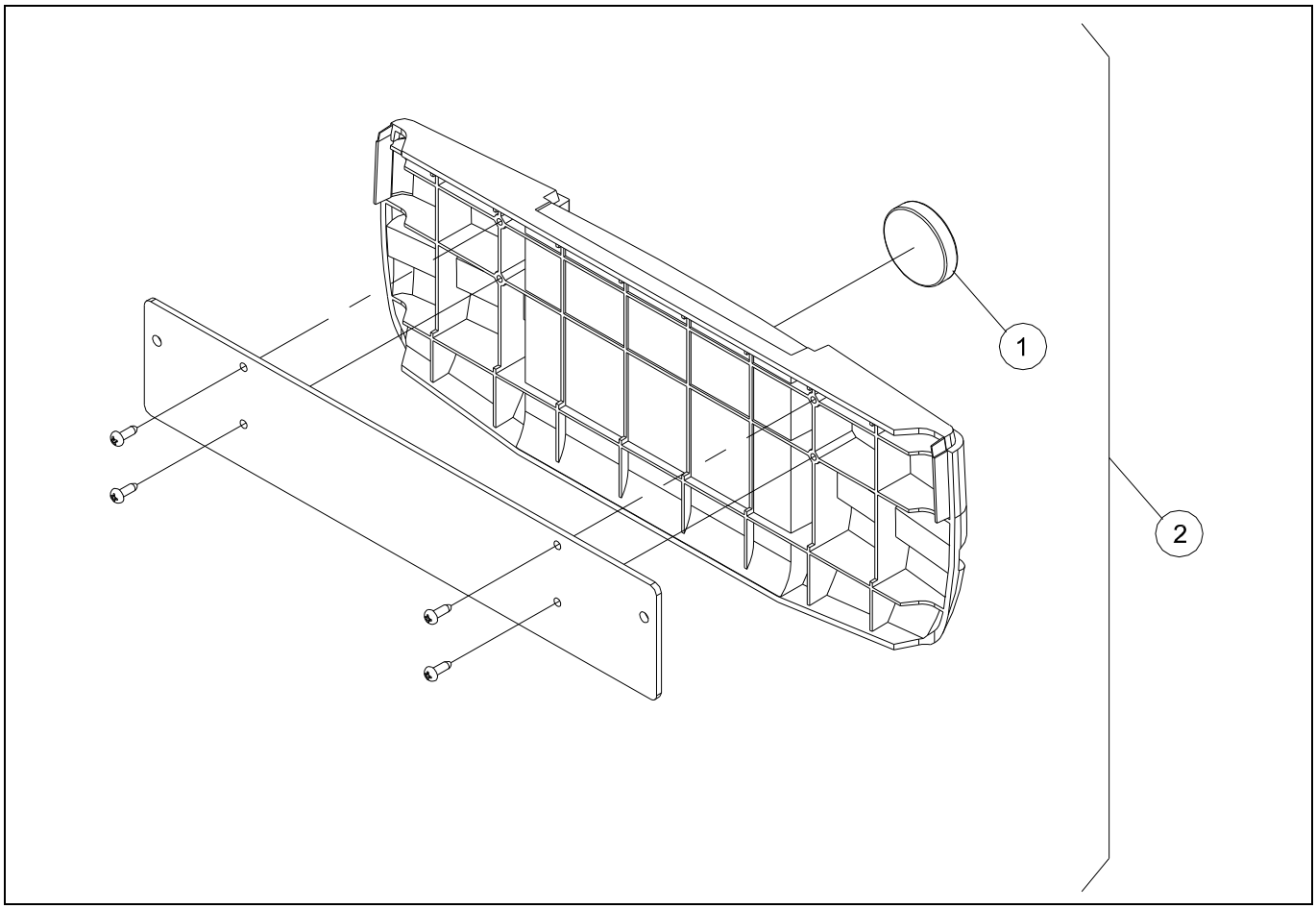
Pos	Article number	Units	Description	
1	05010.4100	1	Tyre front 10"	
2	05010.4000	1	Tube inner 10"	
3	1008951	1	Wheel front 10" assy	

002: Wheel rear assy



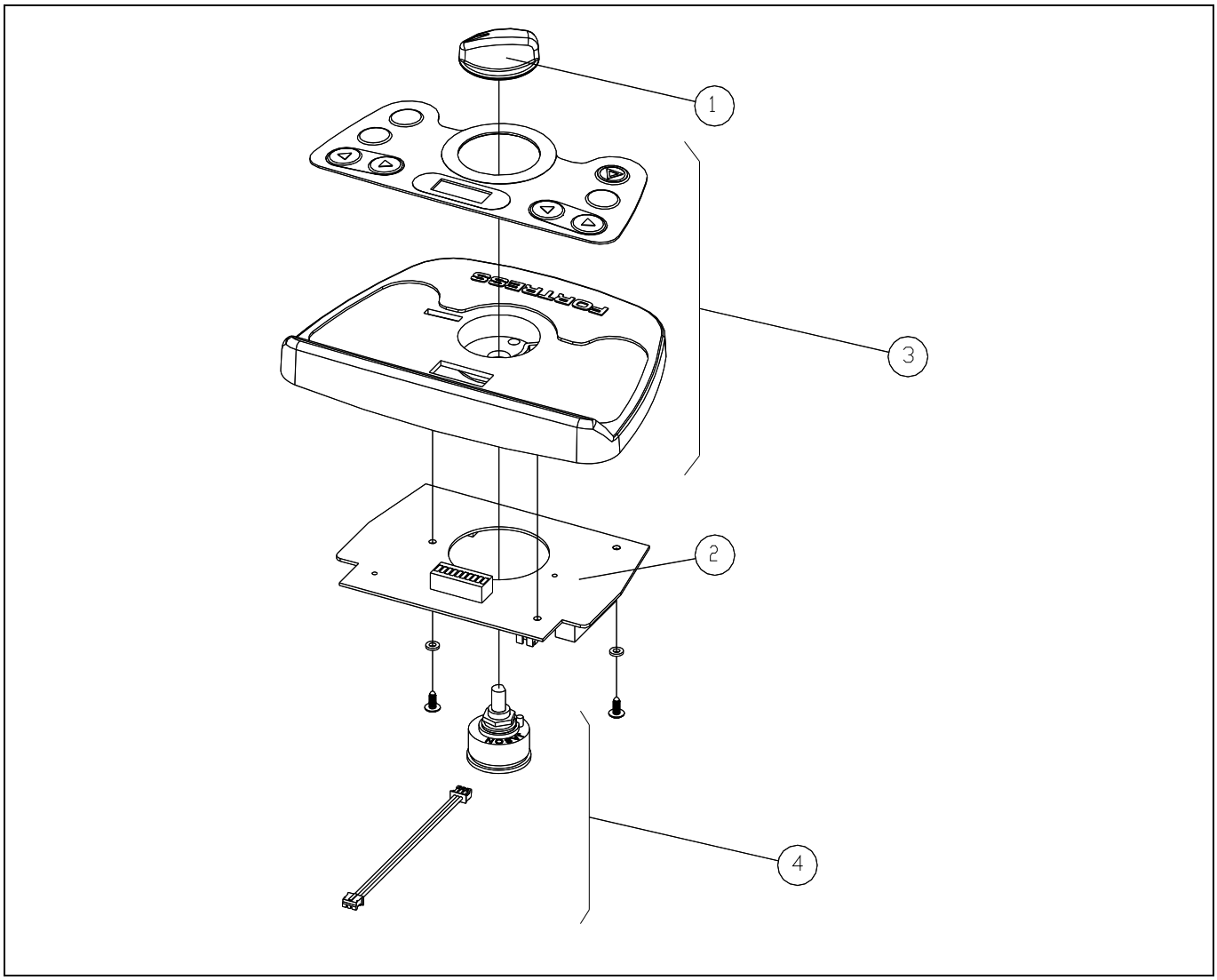
Pos	Article number	Units	Description	
1	1008952	1	Tyre rear 10"	
2	05010.4000	1	Tube inner 10"	
3	1008953	1	Wheel rear 10" assy	

003: Bumper rear assy



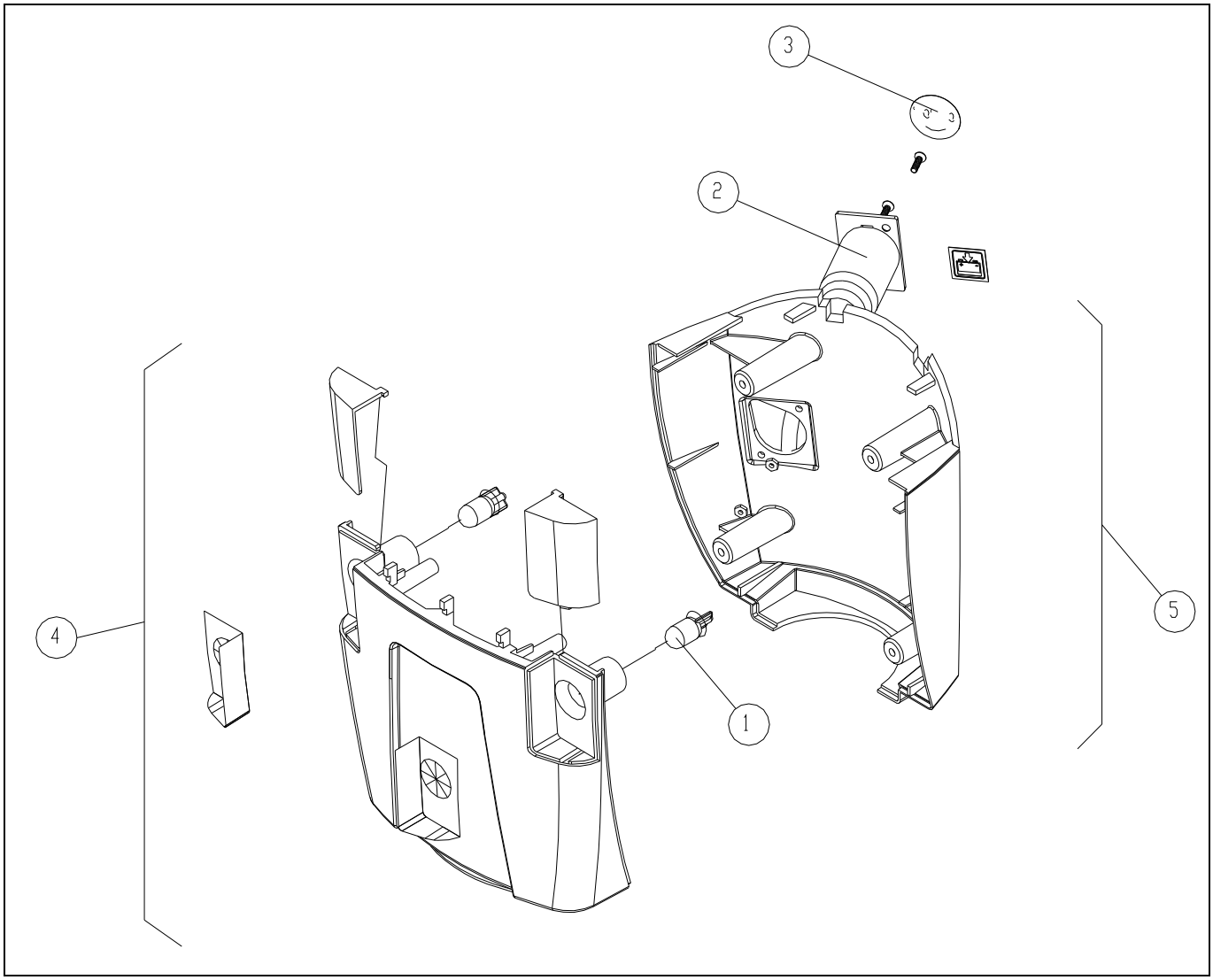
Pos	Article number	Units	Description	
1	1008954	1	Reflector rear	
2	1008955	1	Bumper rear assy	

004: Top console assy



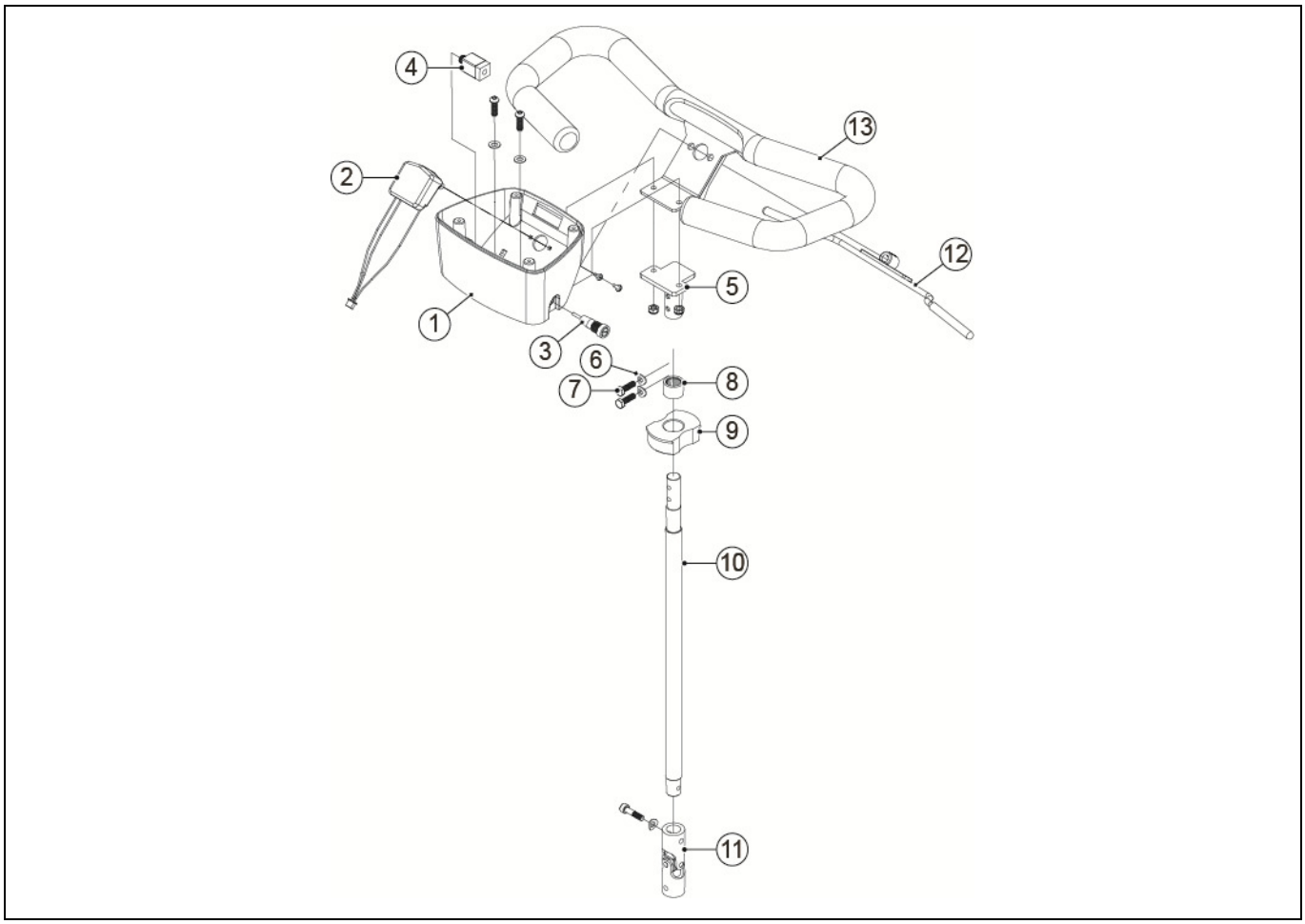
Pos	Article number	Units	Description	
1	1001341	1	Knob speed selector	
2	1008958	1	PCB board with battery indicator	
3	1009156	1	Console speed plastic key pad membrane	
4	1008956	1	Switch speed selector	

005: Bottom console assy



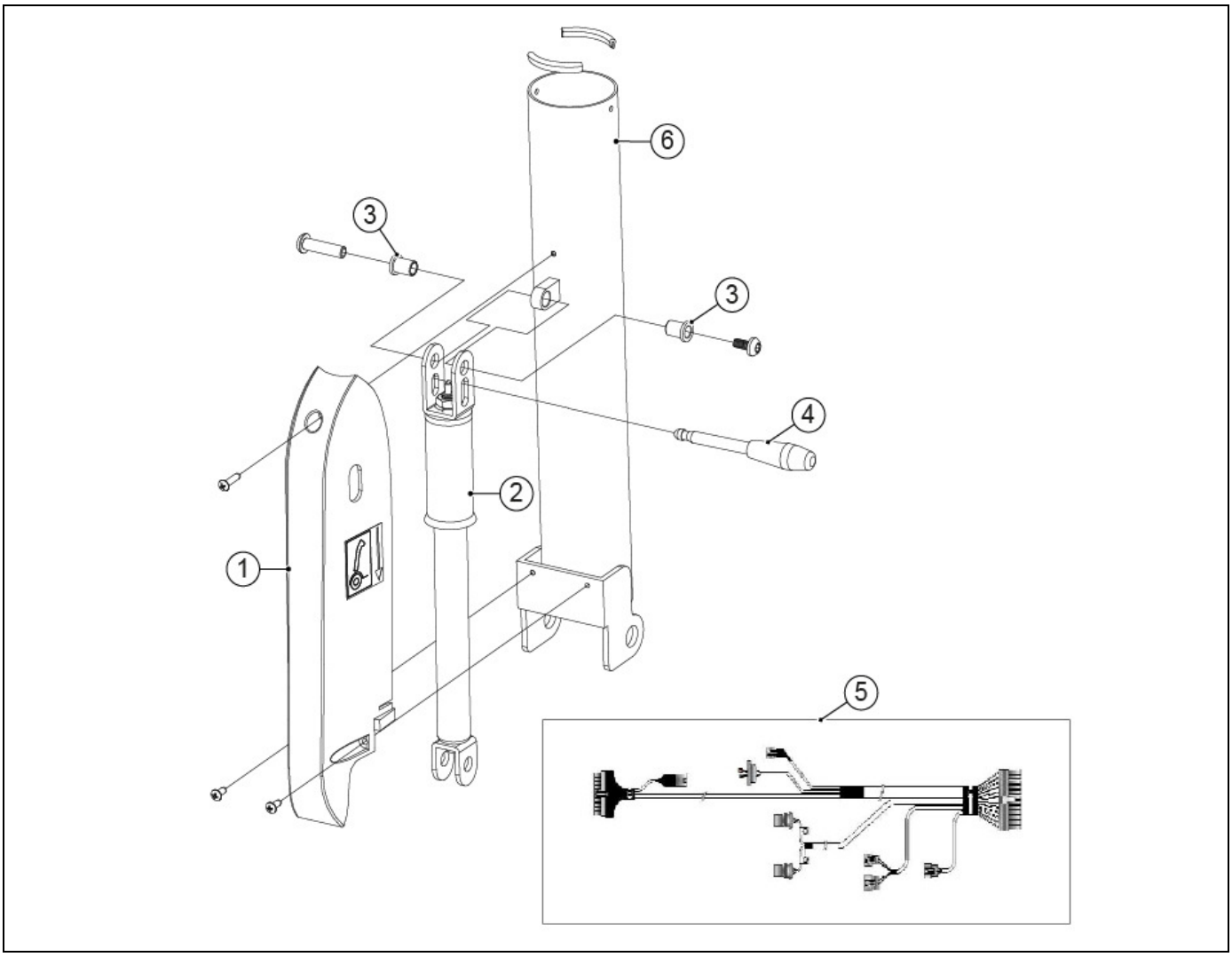
Pos	Article number	Units	Description	
1	1008974	2	Light bulb amber 24v 5w	
2	1009159	1	Charger port assy	
3	No spare part	1	Cover charger port	
4	1009157	1	Shroud front assy	
5	1009158	1	Shroud rear assy	

006: Tiller assy



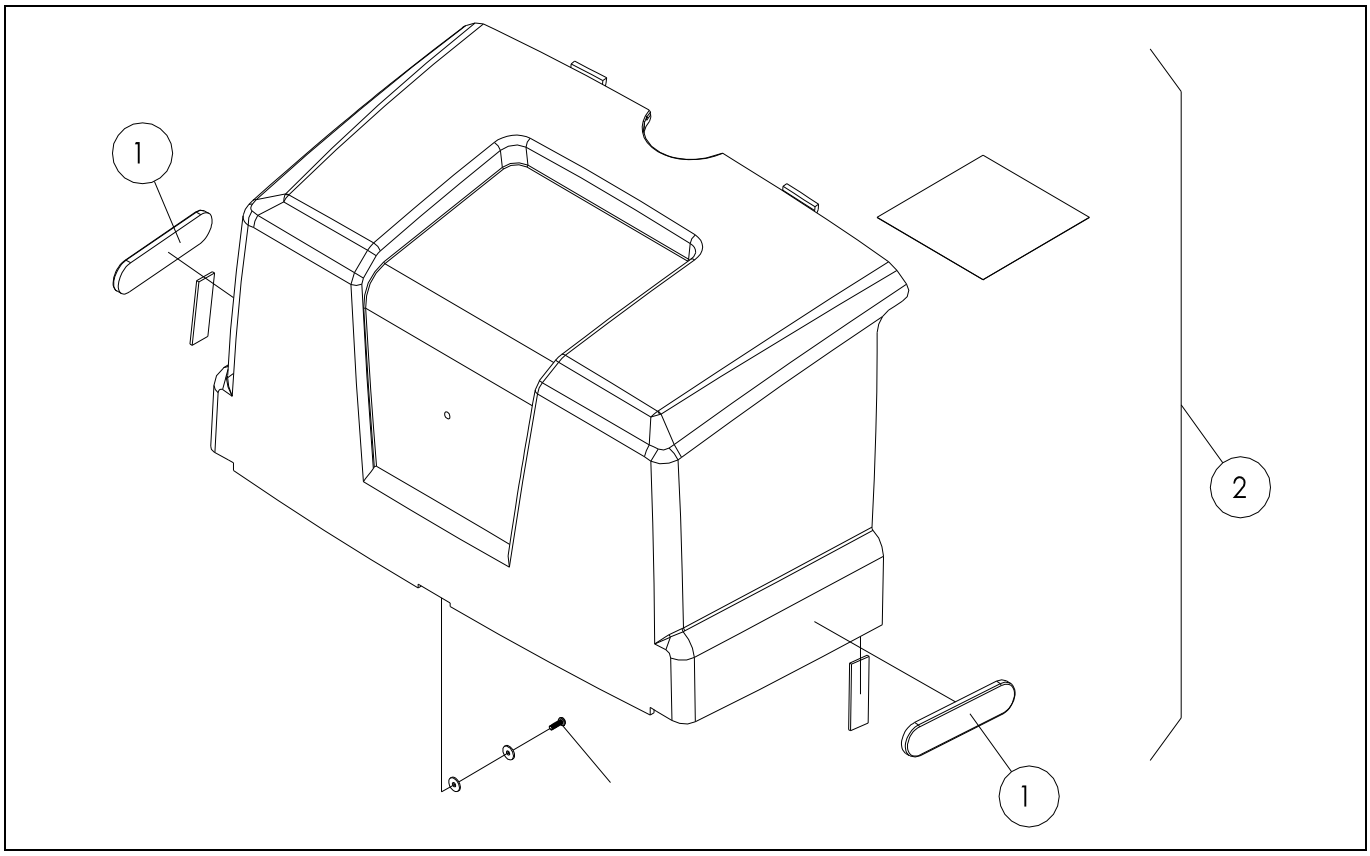
Pos	Article number	Units	Description
1	1008959	1	Shroud top tiller
2	1008960	1	Potmeter throttle
3	1008961	1	PCB fuse assy
4	1008962	1	Jack plug receptacle
5-11	1009160	1	Steering rod assy
12	9003722	1	Finger control assy
13	1014751	1	Steering wheel
-	1001372	1	Contact key

007: Tiller strut assy



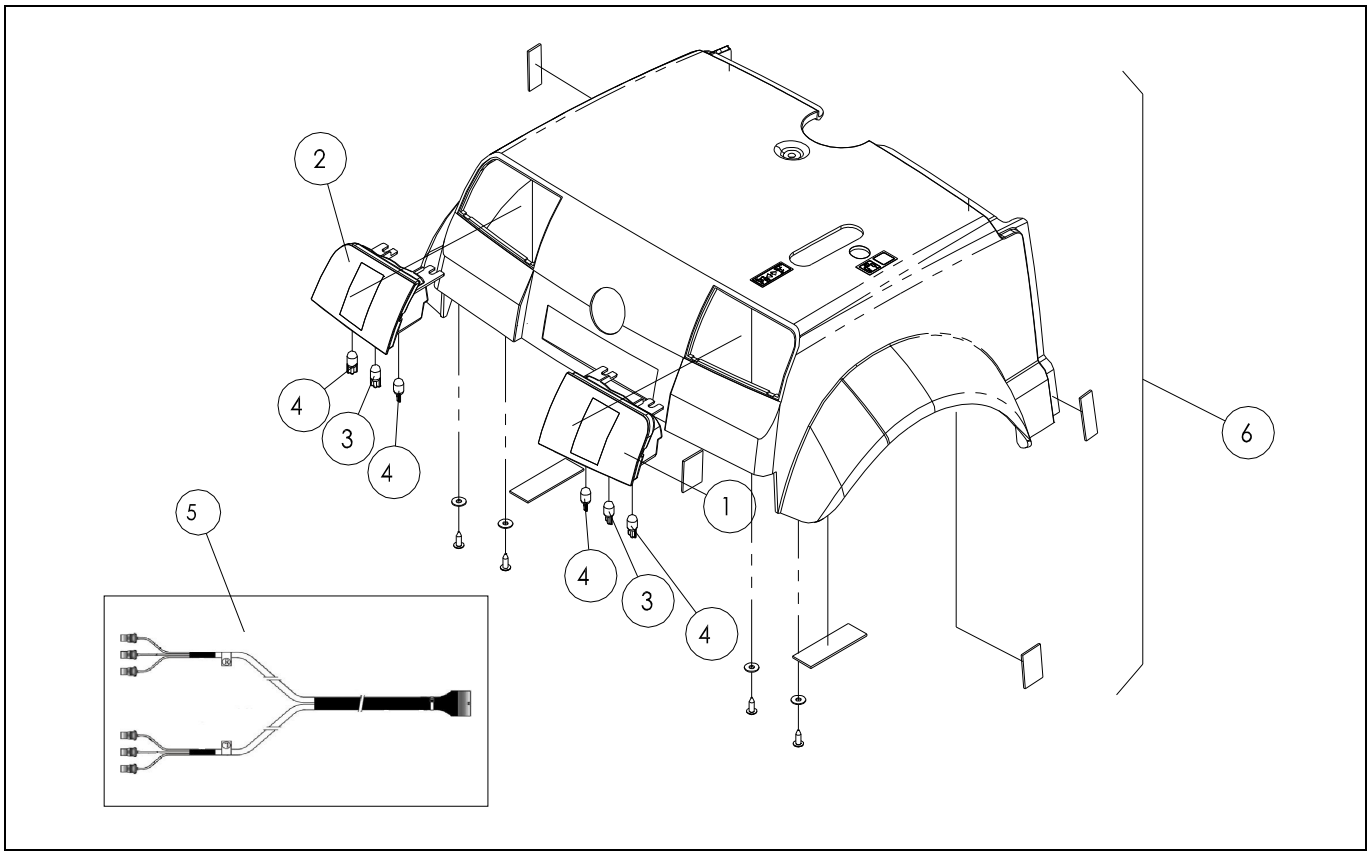
Pos	Article number	Units	Description
1	1008965	1	Shroud tiller strut
2	1008966	1	Strut tiller
3	1008967	2	Bushing plastic
4	1008968	1	Adjustable tiller handle
5	1015177	1	Main harness + controller harness
6	1014750	1	Tiller tube

008: Cover battery assy



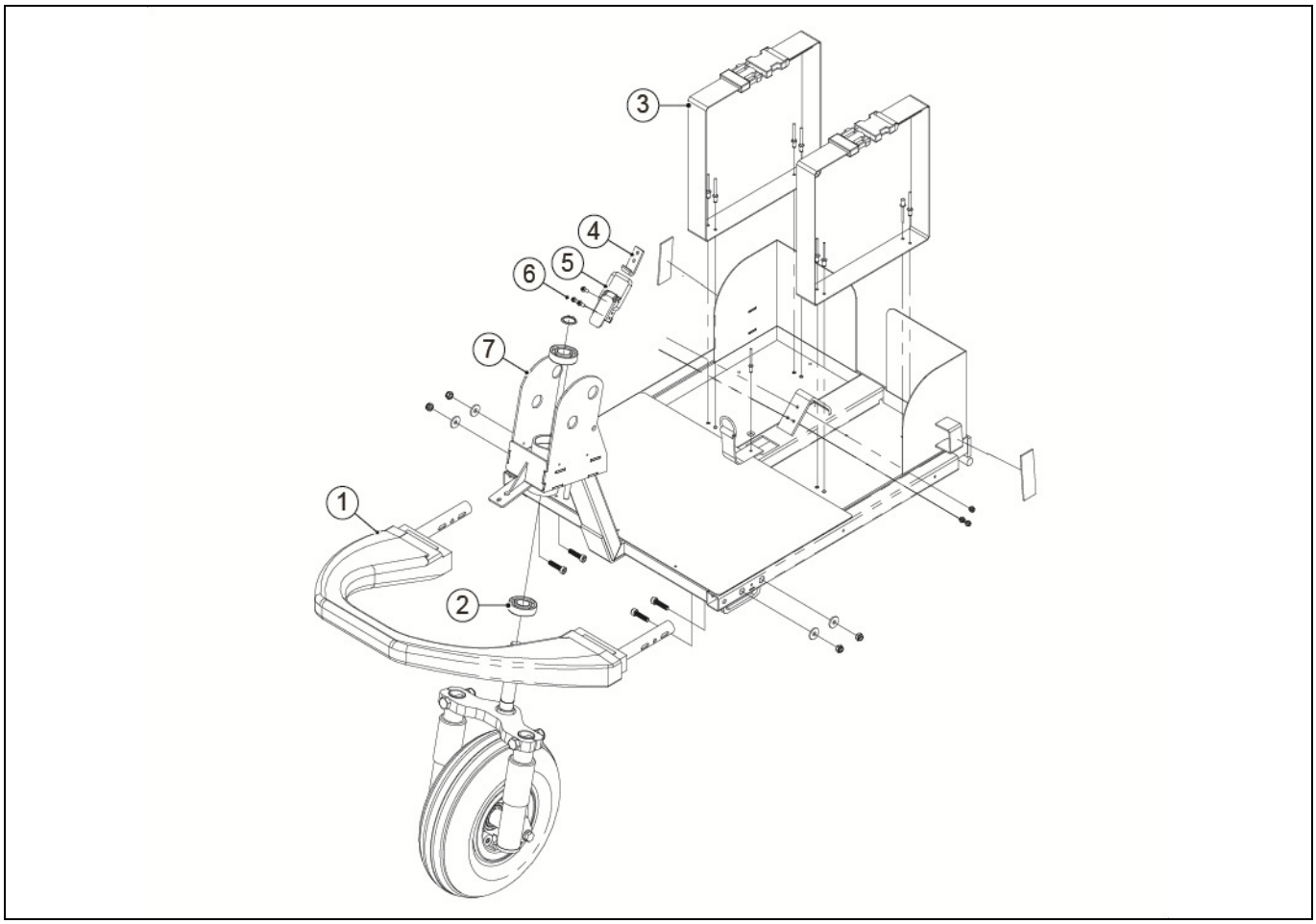
Pos	Article number	Units	Description	
1	051.00031.000	2	Reflector yellow	
2	1008971	1	Cover battery assy	

009: Cover motor assy



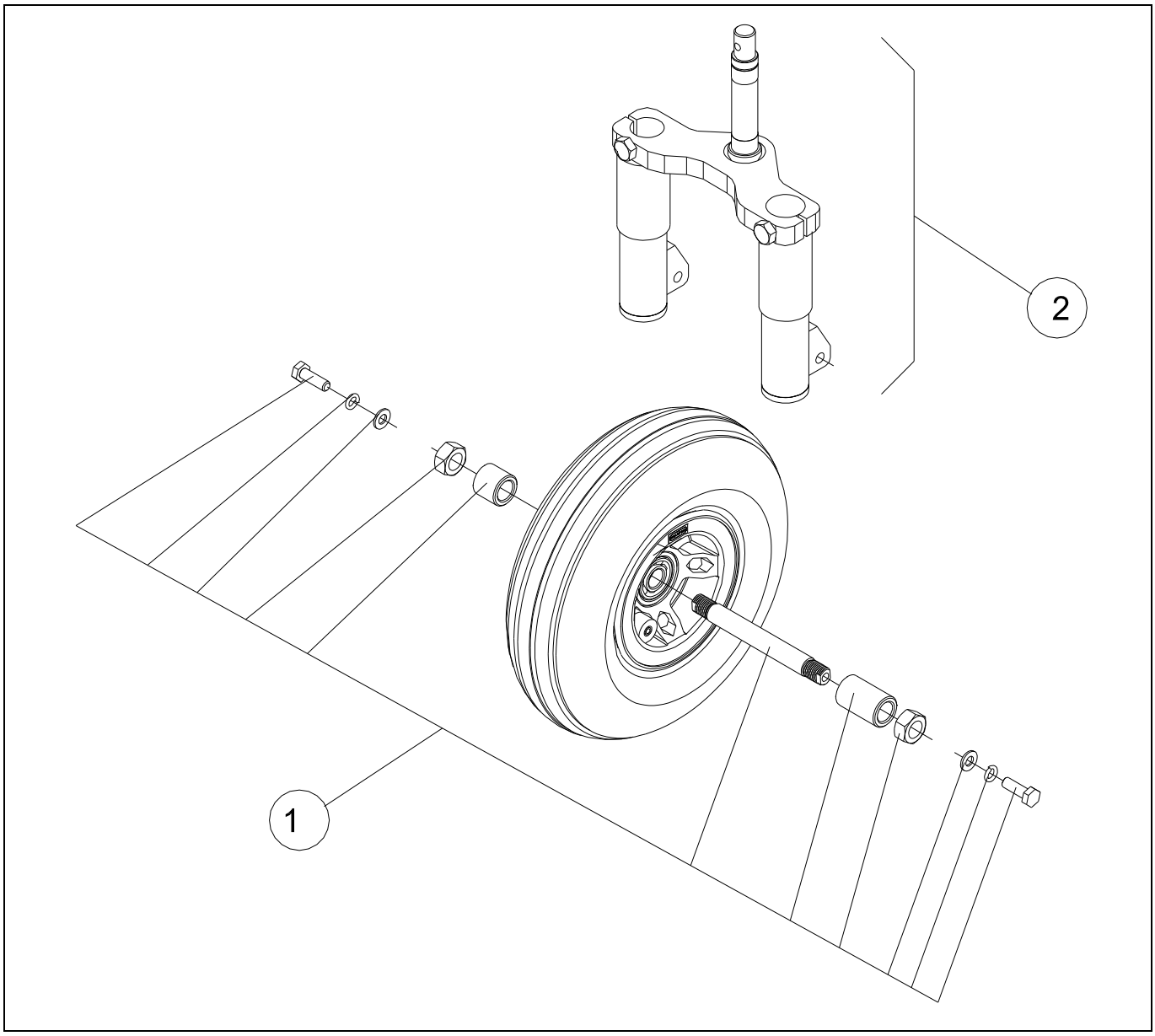
Pos	Article number	Units	Description	
1	1008972	1	Light rear assy – right	
2	1008973	1	Light rear assy – left	
3	1008974	2	Light bulb amber 24v 5w	
4	1001281	4	Light bulb clear 24v 5w	
5	1008976	1	Harness rear light assy	
6	1008977	1	Cover motor assy	

010: Frame front 3W assy



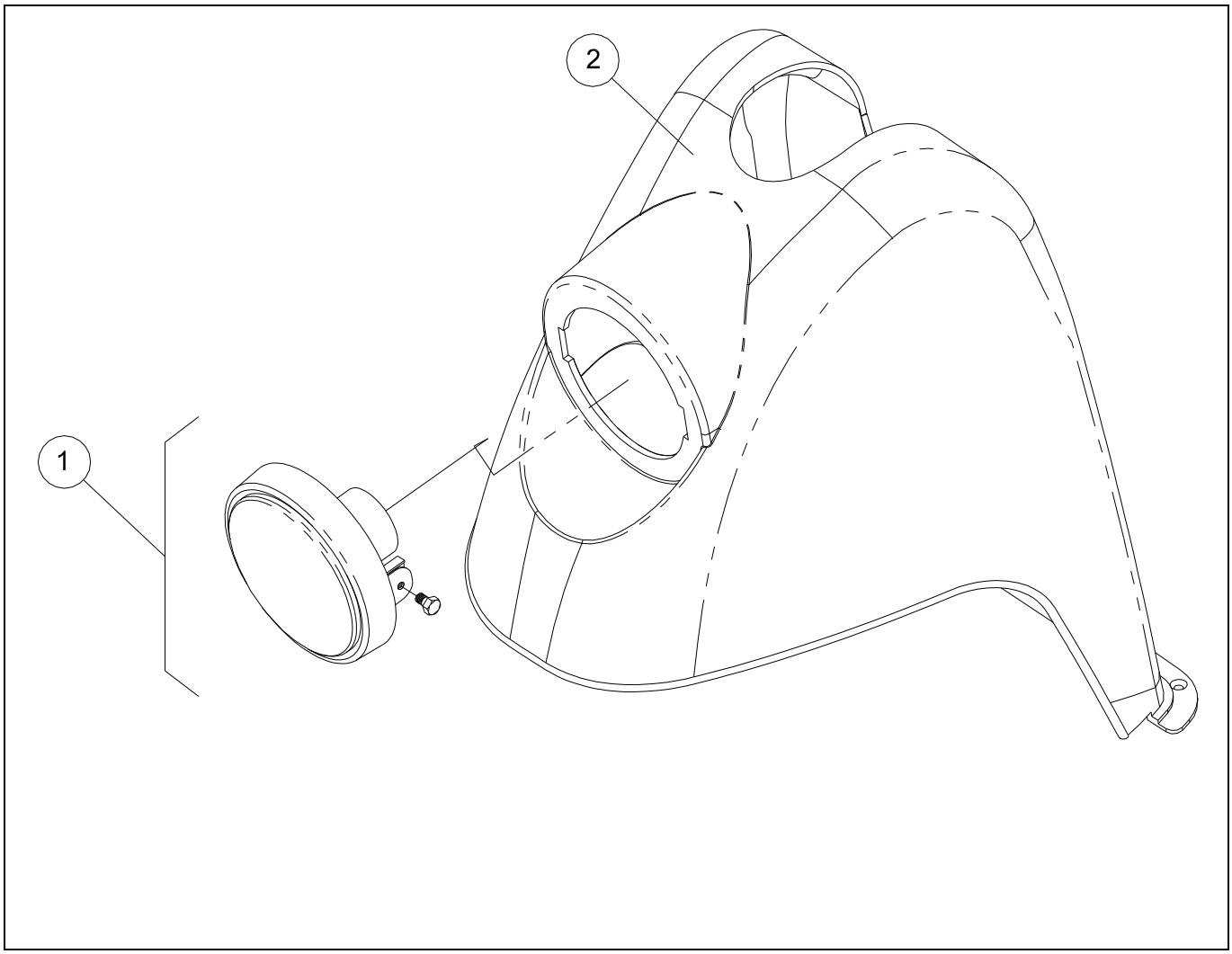
Pos	Article number	Units	Description
1	1008978	1	Bumper front
2	1008979	2	Bearing 20MMx42MMx12MM
3	1008980	2	Strap battery with buckle
4-6	1009161	1	Latch assy
7	1014743	1	Front frame Fortress Calypso 3 wheel

011: Front fork assy



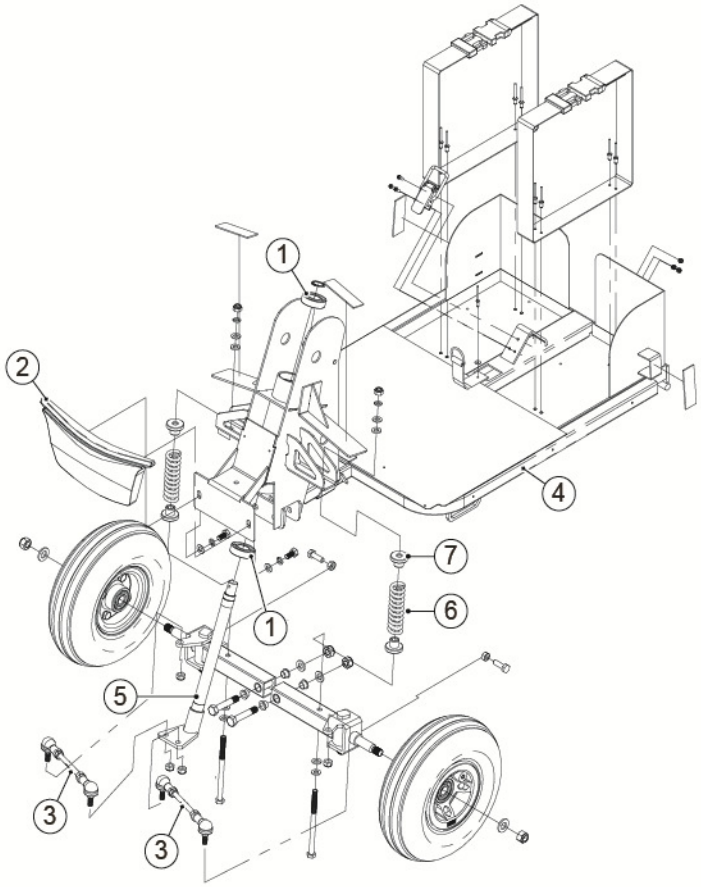
Pos	Article number	Units	Description	
1	1009162	1	Axle front wheel assy	
2	1008982	1	Fork assy	

012: Cover front 3W assy



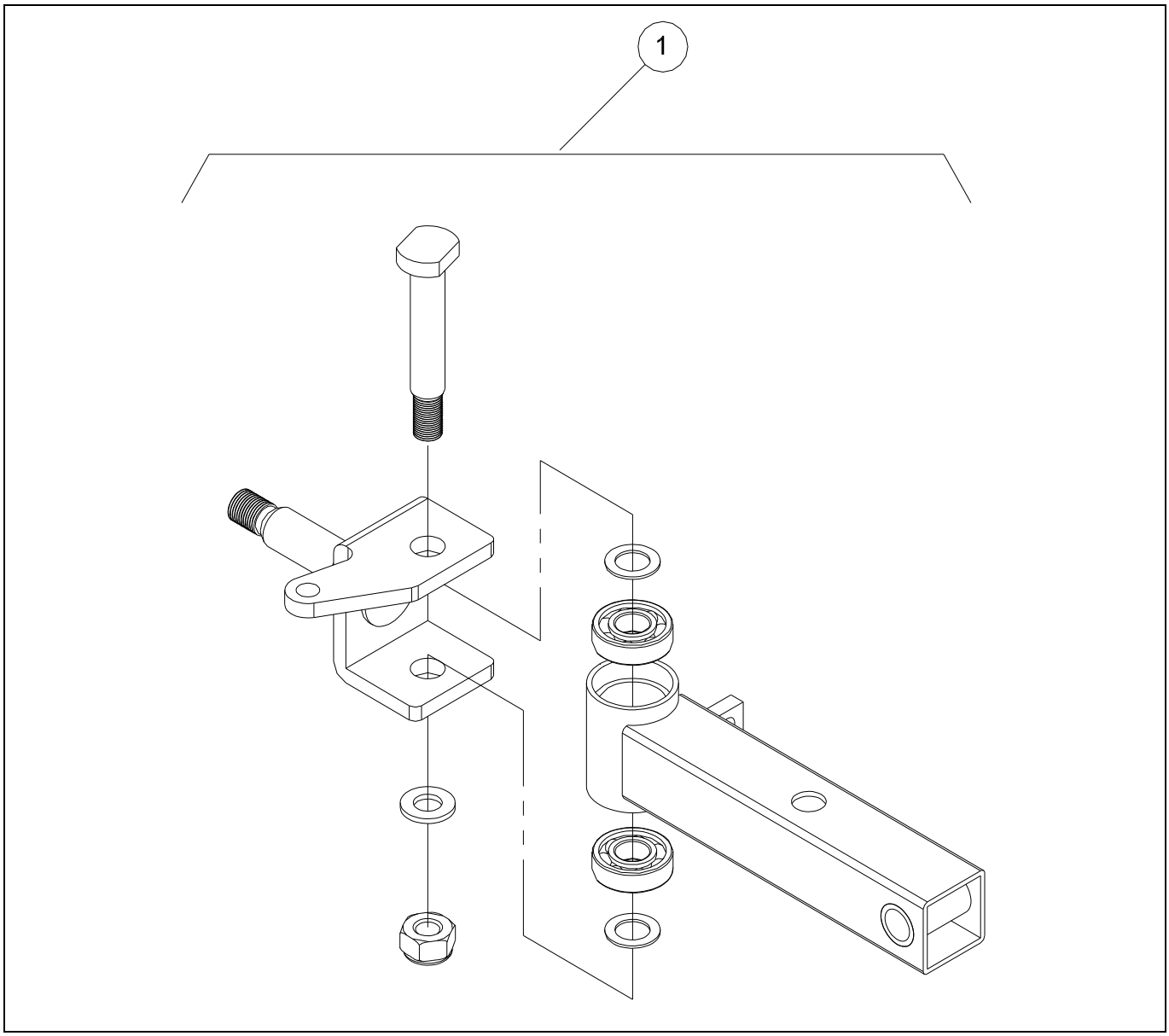
Pos	Article number	Units	Description	
1	1009163	1	Headlight assy	
2	1008983	1	Cover front 3W assy	

013: Frame front 4W assy



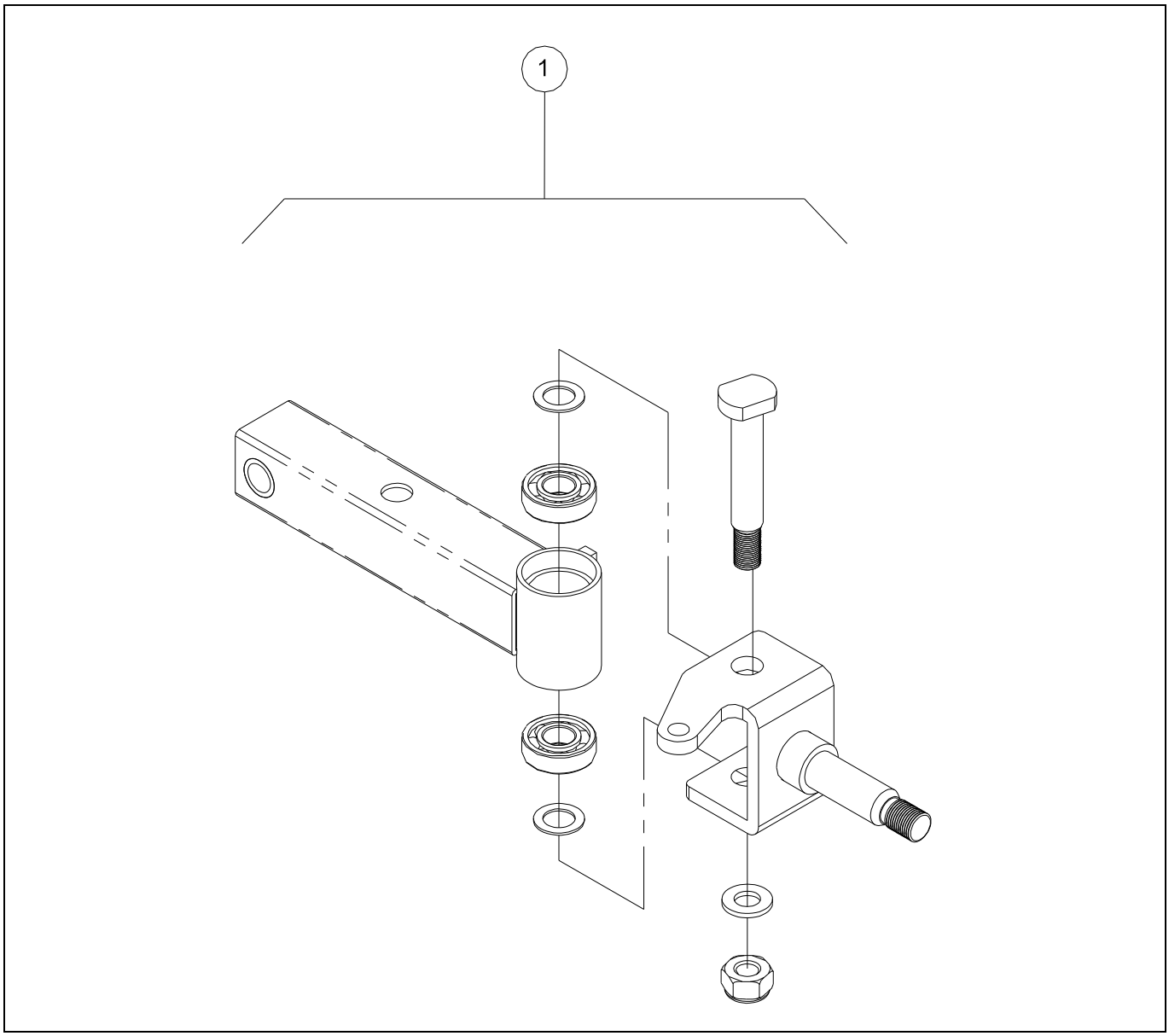
Pos	Article number	Units	Description
1	1008979	2	Bearing 20MMx42MMx12MM
2	1008984	1	Bumper front 4W
3	1009164	1	Steering rod assy 4W
4	1014744	1	Front frame Fortress Calypso 4 wheel
5	1014747	1	Steering axle
6	1014748	2	Front spring
7	1014749	2	Front suspension bearing bush

014: Swing arm right assy



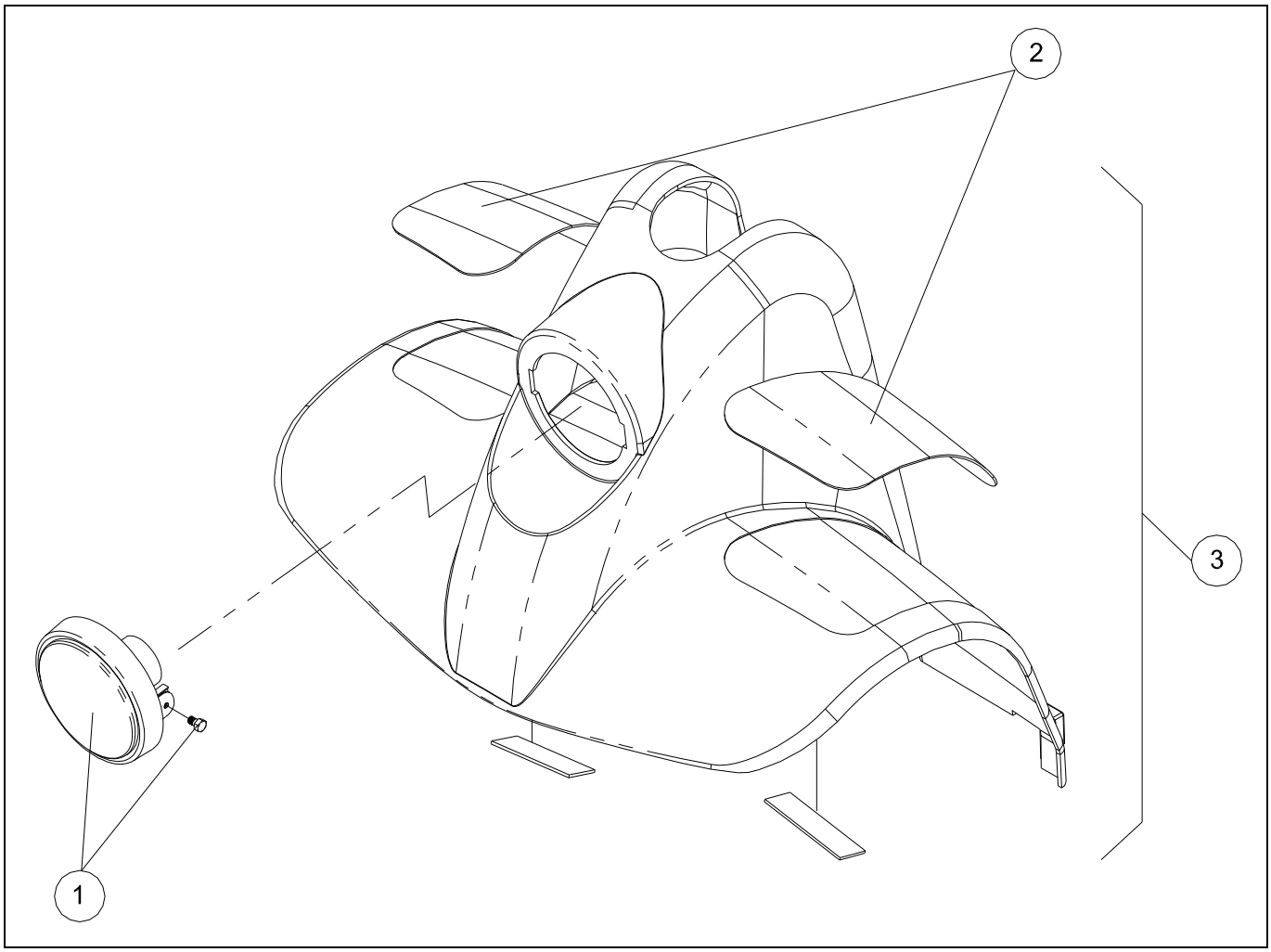
Pos	Article number	Units	Description	
1	1008985	1	Swing arm right assy	

015: Swing arm left assy



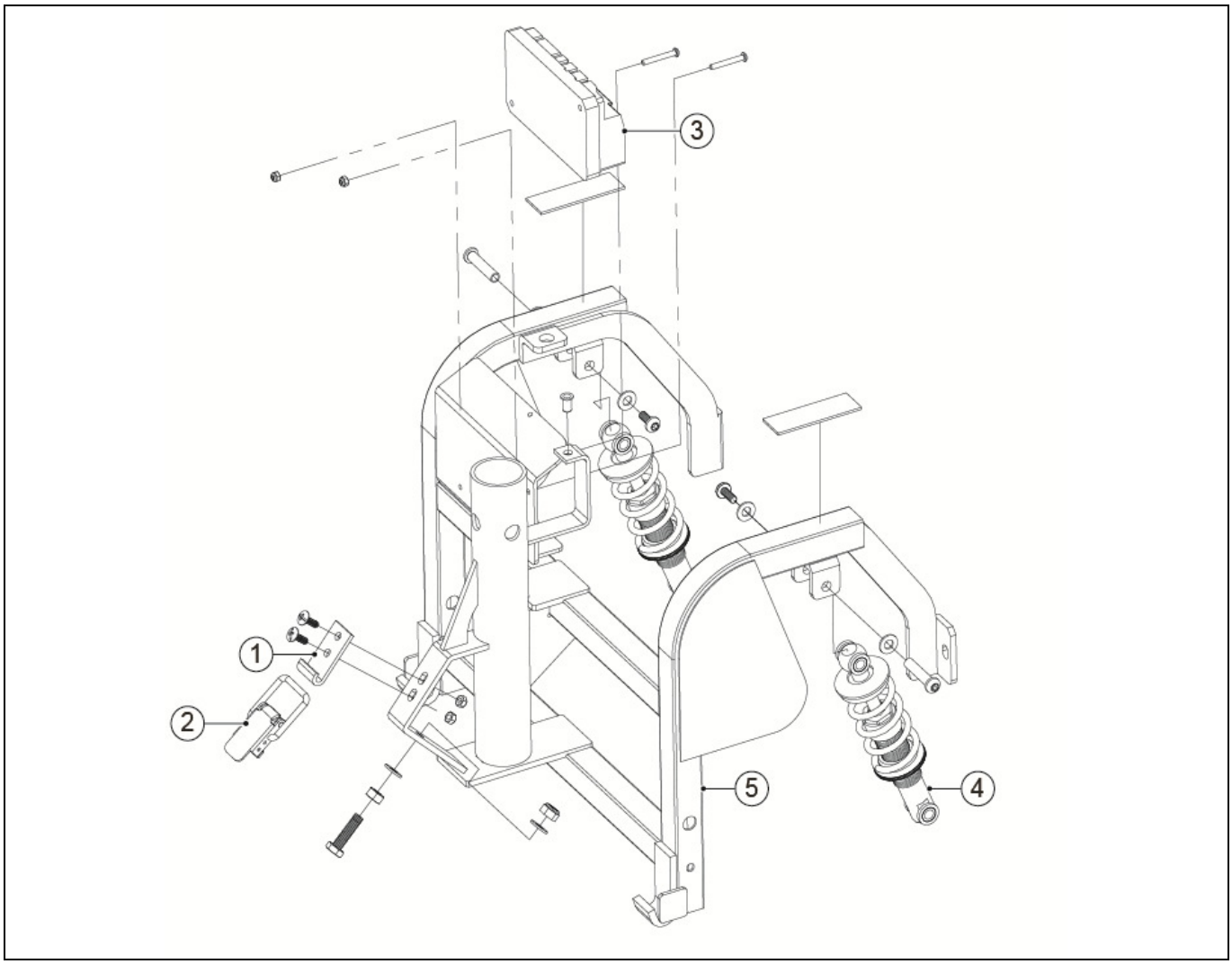
Pos	Article number	Units	Description	
1	1008986	1	Swing arm left assy	

016: Cover front 4W assy



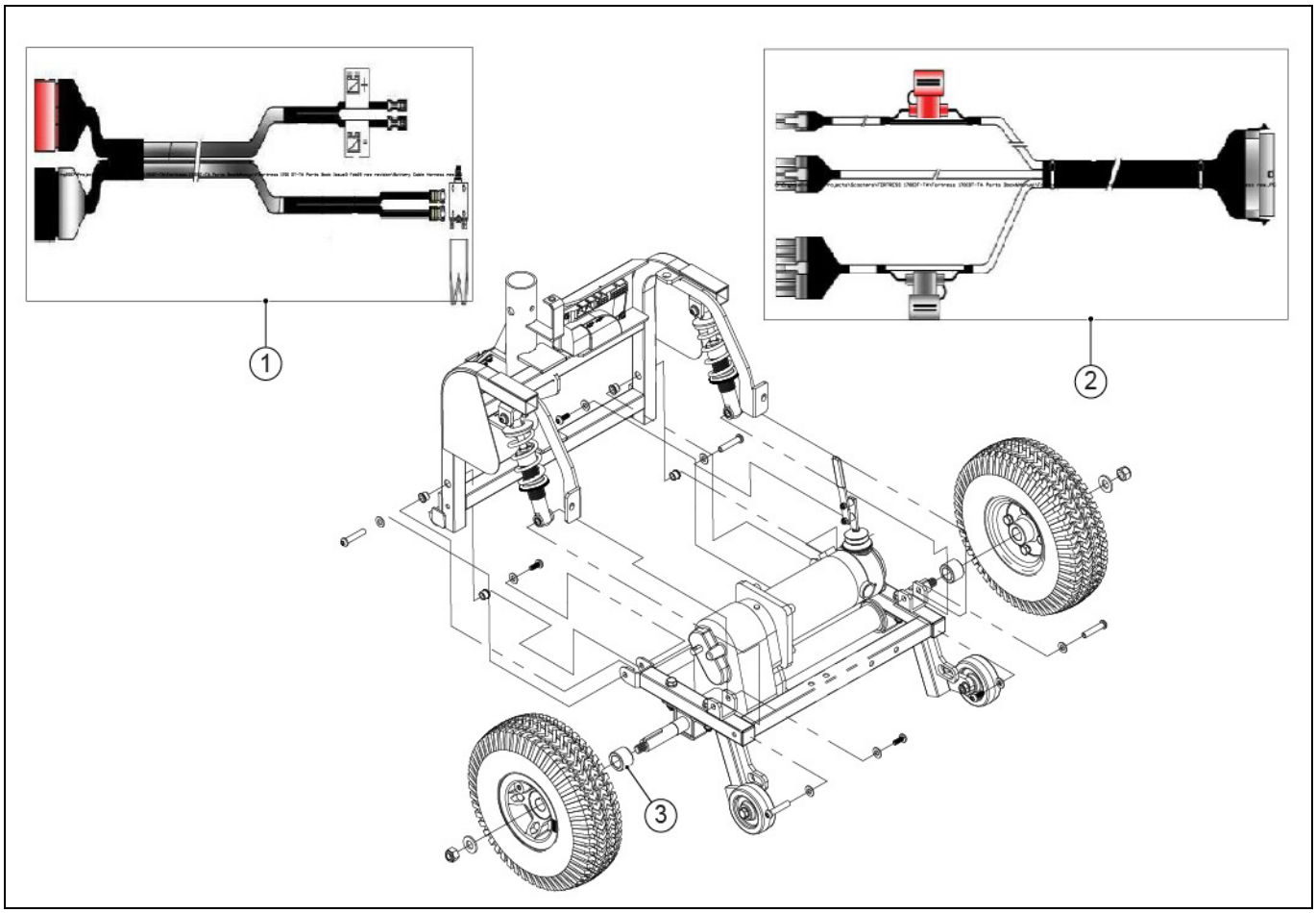
Pos	Article number	Units	Description	
1	1009163	1	Headlight assy	
2	1009165	1	Mat foot 4w set	
3	1008987	1	Cover front 4W assy	

017: Rear frame top assy



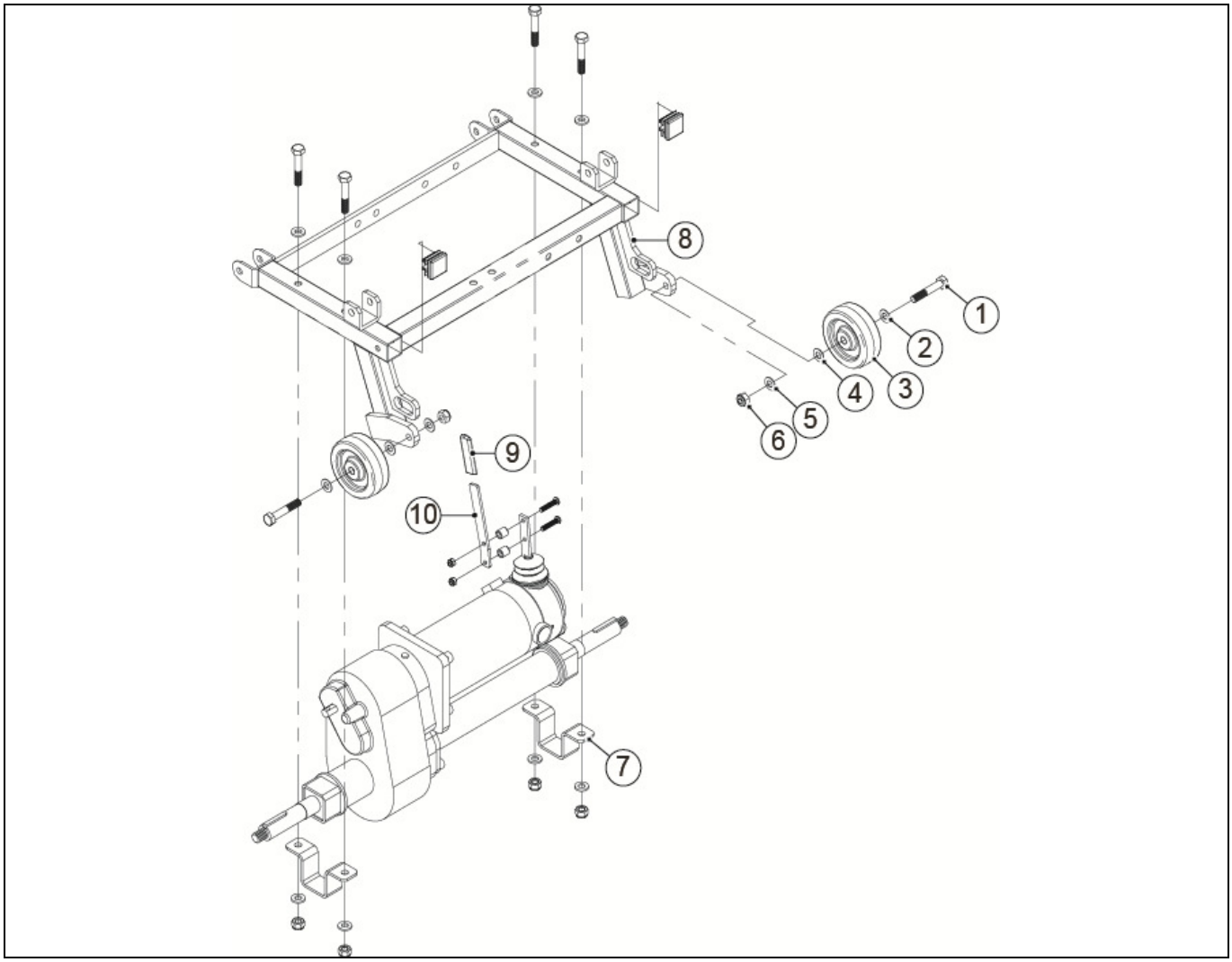
Pos	Article number	Units	Description
1-2	1009161	1	Latch assy
3	1015727	1	Controller Dynamic DR-90 v2.07
4	1008989	1	Shock absorber rear
5	1014745	1	Rear frame upper part

018: Rear frame assy



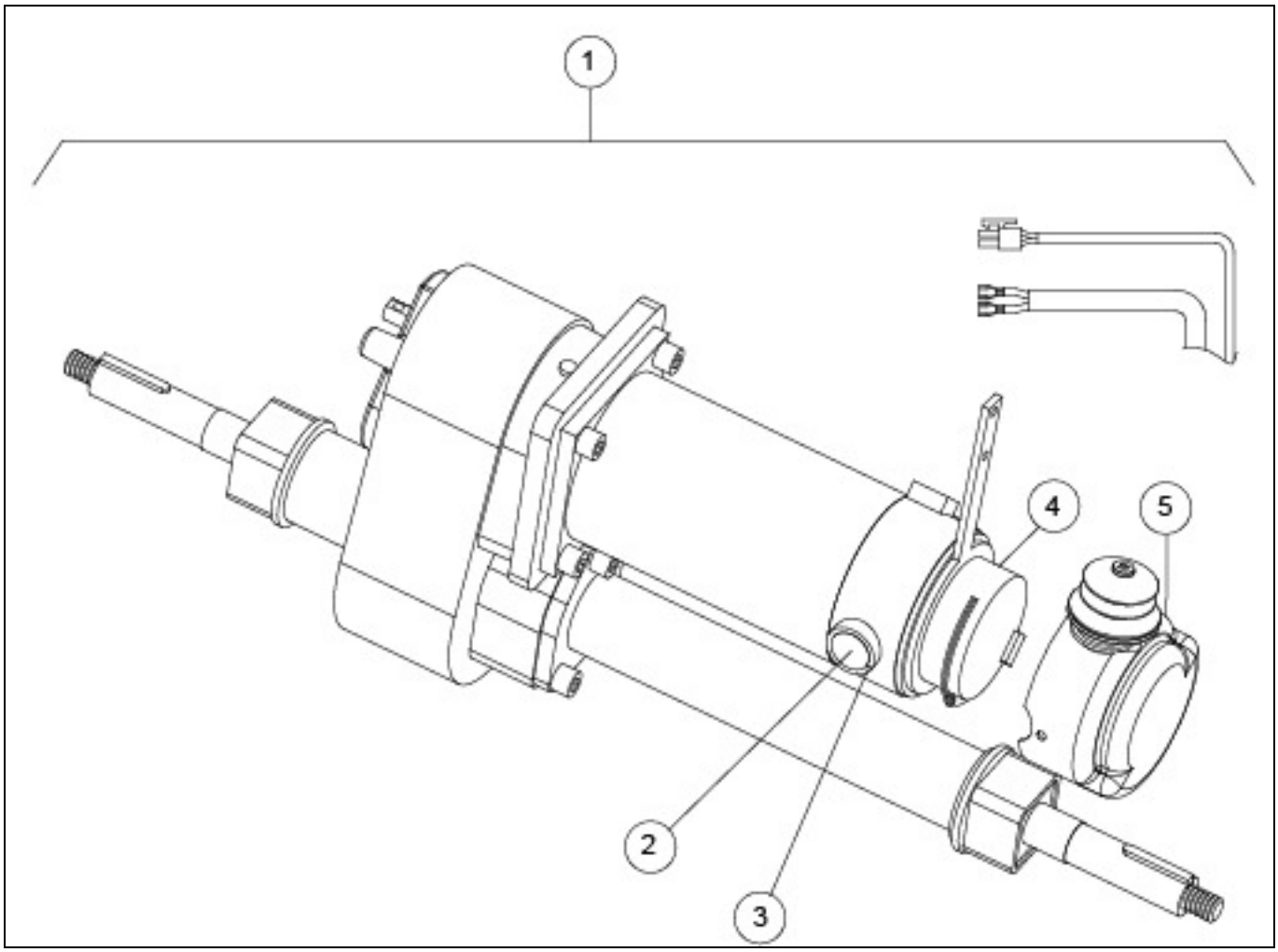
Pos	Article number	Units	Description
1	1008990	1	Cable battery harness
2	1015177	1	Main harness + controller harness
3	1014753	1	Rear wheel spacer
-	9002752	2	Set battery connection covers
-	1014125	1	Battery cable with red connector
-	1014126	1	Battery cable with black connector

019: Rear frame bottom assy



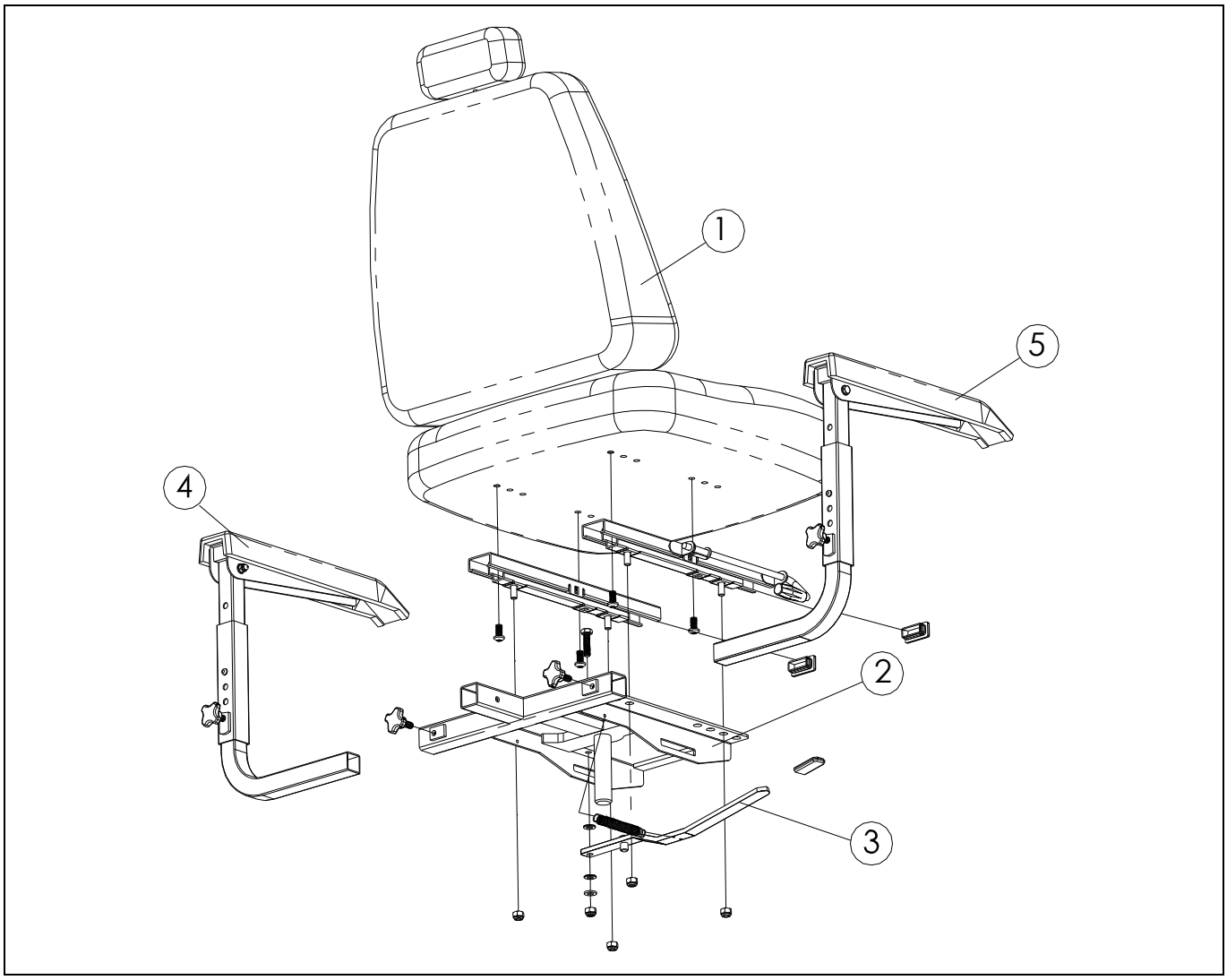
Pos	Article number	Units	Description
1-6	1009167	1	Wheel anti tip assy
7	1008992	1	Bracket mount transaxle
8	1014746	1	Rear frame bottom
9-10	1014752	1	Freewheel lever

020: Transaxle assy



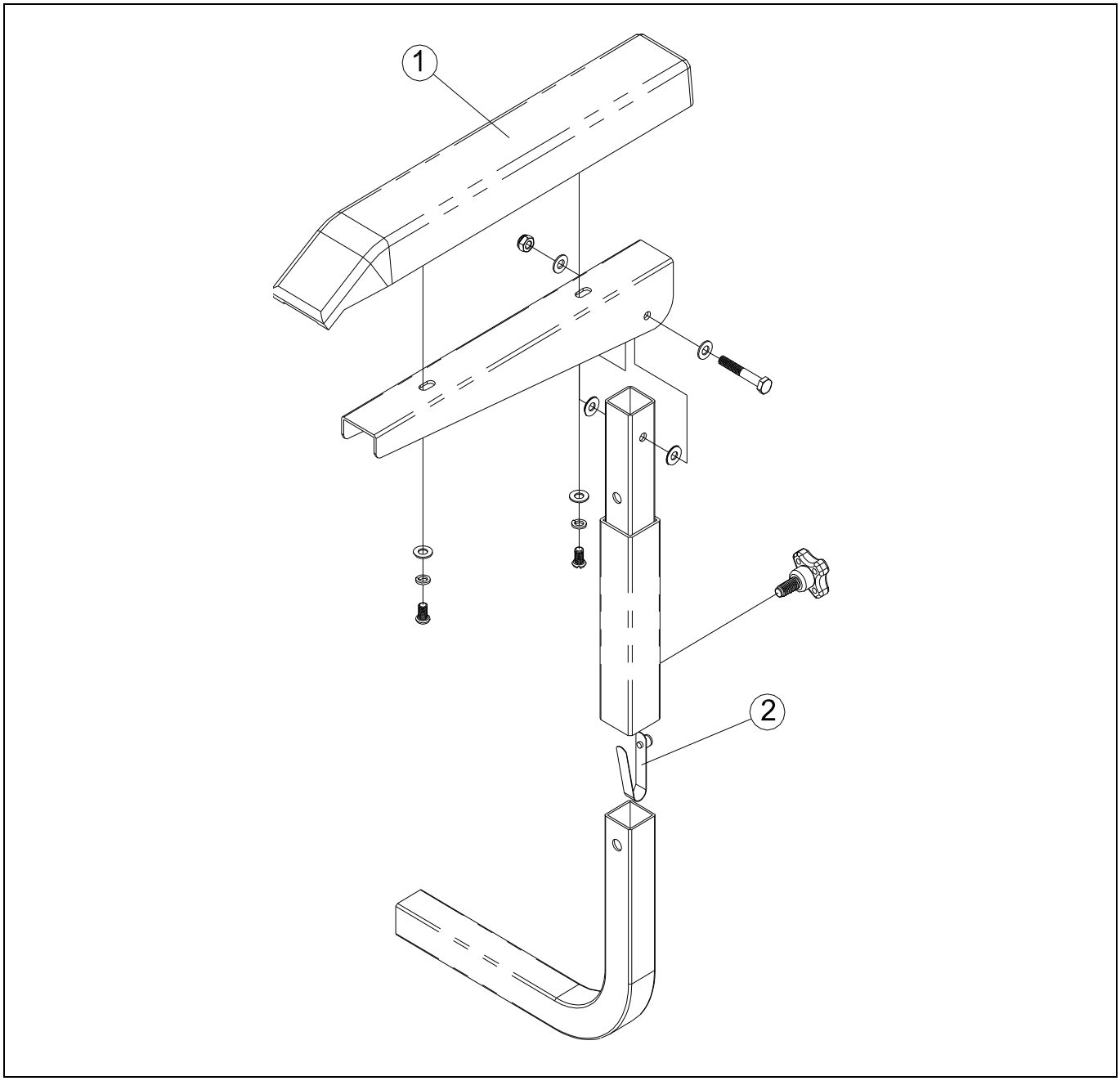
Pos	Article number	Units	Description	
1	1009166	1	Transaxle Assy 10K	
	9003576	1	Transaxle Assy 12K	
2	1008993	2	Brush motor	
3	1008994	2	Cap brush motor	
4	1015605	1	Motor brake	
5	1015606	1	Motor brake cover	
4-5	1015607	1	Motor brake kit	

021: Captain seat assy



Pos	Article number	Units	Description	
1	1008995	1	Seat capt regular with headrest	
2	1008996	1	Seat plate weldment	
3	1008997	1	Lever seat weldment	
4	1008998	1	Armrest assy left adjustable	
5	1008999	1	Armrest assy right adjustable	

022: Armrest adjustable assy



Pos	Article number	Units	Description	
1	232103	1	Armpad foam captain	
2	1009001	1	Detent button	

01-01-2013:
Version 2013v1

Page	Drawing	Position	Changes
42	18	-	Added article number 9002752
44	20	4, 5, 4-5	Added article numbers 1015605, 1015606 and 1015607 (Motor brake, motor brake cover and motor brake kit)

01-01-2014:
Version 2014v1

Page	Drawing	Position	Changes
13	-	-	Added reference to the FTP server where the driving programs can be downloaded
41	17	2	Changed article number 1008988 into 1015727 and added version number in description
42	18	-	Added article numbers 1014125 and 1014126

01-10-2014:
Version 2014v2

Page	Drawing	Position	Changes
17	-	-	Changed specification maximum permitted charging current 5A into 8A

01-01-2015:
Version 2015v1

Page	Drawing	Position	Changes
7			Updated warranty text
14	-	-	Added transaxle power information
30	6	13	Added article number 1014751 Steering wheel
31	7	6	Added article number 1014750 Tiller tube
34	10	7	Added article number 1014743 Front frame Fortress Calypso 3 wheel
37	13	4 5 6 7	Added article number 1014744 Front frame Fortress Calypso 4 wheel Added article number 1014747 Steering axle Added article number 1014748 Front spring Added article number 1014749 Front suspension bearing bush
41	17	5	Added article number 1014745 Rear frame upper part
42	18	3	Added article number 1014753 Rear wheel spacer
43	19	8 9-10	Added article number 1014746 Rear frame bottom Added article number 1014752 Freewheel lever

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